New Beith Road Upgrade, Flagstone, Queensland (EPBC 2023/09505)

Preliminary Documentation Report - Part B

Peet Flagstone City Pty Ltd
November 2025

Saunders Havill

PATHWAYS TO SUCCESS

New Beith Road Upgrade

Application Number: **01732** Commencement Date: **28/03/2023** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

New Beith Road Upgrade

1.1.2 Project industry type *

Transport - Land

1.1.3 Project industry sub-type

Road

1.1.4 Estimated start date *

02/10/2023

1.1.4 Estimated end date *

02/10/2024

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

The proposed action is to upgrade and extend the southern end of New Beith Road, Flagstone. The site is centred on the coordinates –27.76894, 152.93690.The total action impact area incorporating the works extent is approximately 17.12 hectares (ha) and 3.2 kilometres (km) in length, with a referral area inclusive of a 20 m buffer to the works extent totalling 30.16 ha (refer to *Att 1 8418 MNES Report 20230307 – Figure 3* for the Development Layout of this proposed action.

The proposed action is for an upgrade to New Beith Road to deliver a transport corridor required to service multiple Greater Flagstone Priority Development Area (PDA) development projects, some with EPBC Act approvals and some under assessment. The action will require the clearing of vegetation, although the road works extent aligns with the existing disturbed road reserve, much of which has been historically cleared.

The proposed action will involve vegetation clearing of approximately 13.57 ha of vegetation comprising Category X (non-remnant), Category B (remnant) and Category C (high-value regrowth) vegetation under the Queensland *Vegetation Management Act 1999*. The total vegetation impact area is 17.12 ha, however 3.55 ha of this area consists of the existing cleared track. Refer to the attached *Att 1 8418 MNES Report 20230307, Section 5 - Impact Assessment, page 49*. Clearing of native vegetation will have a direct impact on habitat for threatened species and threatened ecological communities. Additional activities for the proposed action include construction of a road crossing over Flagstone Creek, and associated vegetation clearing, excavation and construction of the entire road.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

The proposed action is being referred under the *Environmental Protection and Biodiversity Conservation Act 1999* for potential impacts to Matters of National Environmental Significance. Refer to the attached *Att 1 8418 MNES Report 20230307, Section 2 - Commonwealth Legislation and Policy, page 14 and Section 3.3 - Likelihood of Occurrence Assessment, page 18.*

The proposal site falls within the Greater Flagstone Priority development Area and is subject to the provisions of the Greater Flagstone Priority Development Area Development Scheme. Economic Development Queensland (EDQ) are the assessing agency at the State level and the road has a necessity to proceed (refer to the attached *Att 2 EDQ Correspondence*). The proposal is currently under assessment by EDQ. Under the relevant Development Scheme, all necessary State policy documentation is applied to environmental matters, including the conditioning of vegetation and fauna management procedures to mitigate impacts and the design and designation of fauna mitigation factors such as fauna crossings as per best-practice DTMR guidelines.

Refer to the attached *Att 1 8418 MNES Report 20230307, all figures and plans* for further environmental constraints discussion.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

At present, there has been no public consultation undertaken for this project other than with the relative parties. Once the referral is confirmed to be valid, provided the information set out in Schedule 2 of the EPBC regulations, the referral will be published and all of its supporting documents on the EPBC public portal for public comments for 10 business days. Additionally, public consultation will be conducted as part of the State Approval under Economic Development Queensland (EDQ).

1.3.1 Identity: Referring party

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details	
ABN/ACN	24144972949
Organisation name	Saunders Havill Group Pty Ltd
Organisation address	9 Thompson Street, Bowen Hills, Qld, 4006

Referring party details	
Name	Lisa Fry
Job title	Ecologist
Phone	0422889755
Email	lisafry@saundershavill.com
Address	9 Thompson Street, Bowen Hills, Qld, 4006

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	17151187594
Organisation name	Peet Flagstone City Pty Ltd
Organisation address	GPO Box 1114, Brisbane, Queensland 4001

Person proposing to take the action details

Name	Michael Stone
Job title	General manager - QLD
Phone	07 3166 0308
Email	michael.stone@peet.com.au
Address	Level 3, 167 Eagle Street Brisbane QLD 4000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

Peet Flagstone City Pty Ltd understands and recognises it has a duty of care to the environment. The company's environmental management record does not include any instances of contraventions or non-compliances with EPBC approval conditions. Peet Flagstone City Pty Ltd develops project specific environmental policy in order to conduct responsible environmental management across all proposed developments under their control. Site specific management plans to mitigate the potential for adverse impacts on environmental matters will be developed for the project as required under all approvals.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

Peet Flagstone City Pty Ltd develops project specific environmental policy in order to conduct responsible environmental management across all proposed developments under their control. Site specific management plans to mitigate the potential for adverse impacts on environmental matters will be developed for the project as required under all approvals.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	17151187594
Organisation name	Peet Flagstone City Pty Ltd
Organisation address	GPO Box 1114, Brisbane, Queensland 4001

Proposed designated proponent details

Name	Michael Stone
Job title	General manager - QLD
Phone	07 3166 0308
Email	michael.stone@peet.com.au
Address	Level 3, 167 Eagle Street Brisbane QLD 4000

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	24144972949
Organisation name	Saunders Havill Group Pty Ltd
Organisation address	9 Thompson Street, Bowen Hills, Qld, 4006
Representative's name	Lisa Fry
Representative's job title	Ecologist
Phone	0422889755
Email	lisafry@saundershavill.com
Address	9 Thompson Street, Bowen Hills, Qld, 4006

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	17151187594
Organisation name	Peet Flagstone City Pty Ltd
Organisation address	GPO Box 1114, Brisbane, Queensland 4001
Representative's name	Michael Stone
Representative's job title	General manager - QLD
Phone	07 3166 0308
Email	michael.stone@peet.com.au
Address	Level 3, 167 Eagle Street Brisbane QLD 4000

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

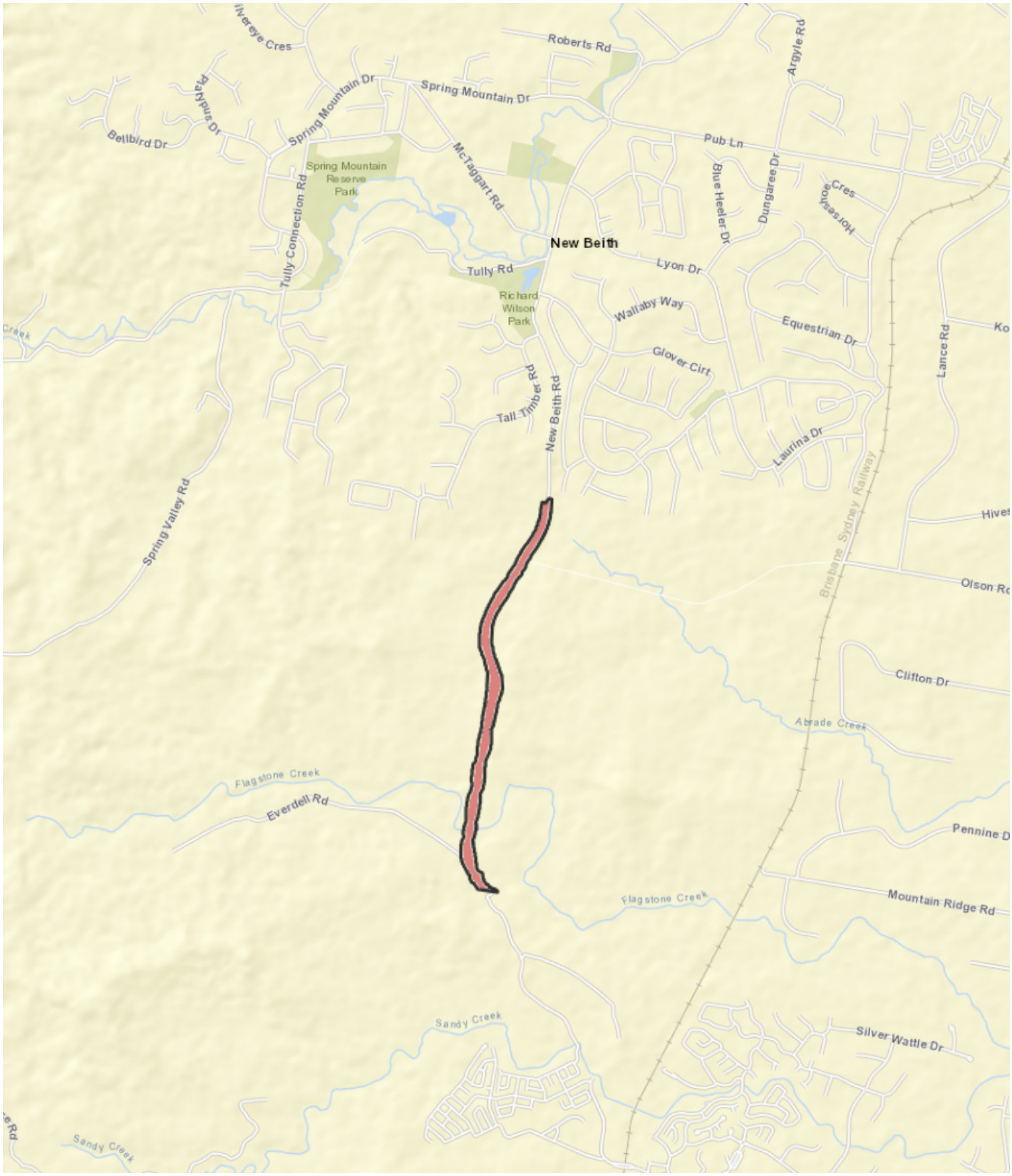
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Person proposing to take the action

2. Location

2.1 Project footprint



2.2 Footprint details

2.2.1 What is the address of the proposed action? *

New Beith Road, Flagstone, centred on the coordinates – 27.76894, 152.93690. The project can be accessed at the turnoff

2.2.2 Where is the primary jurisdiction of the proposed action? *

Queensland

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The property is road reserve and freehold.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The referral area is located in a landscape that has been subject to modification through historical clearing for rural pursuits and clearing for surrounding residential development (refer to *Att 1 8418 MNES Report 20230307, Plan 2 – Historical Imagery Analysis, page 13* for historical aerial imagery analysis). The site itself has been subject to substantial historical disturbance including clearing for rural pursuits on land surrounding the road works extent and clearing within the existing road reserve for the current road. Field surveys confirm the current road reserve consists of an existing paved road for the northern portion and cleared tracks through the southern portion, where surrounding vegetation has been impacted by clearing and ongoing disturbances including dust, noise and emissions from vehicle use and other illegal uses (vandalism and four-wheel drive and offroad vehicle damage). The referral area contains some retained vegetation dominated by Eucalypt species and waterway areas dominated by *Melaleuca* sp. and *Lophostemon* sp. along with historically cleared areas where wattle regrowth dominates the vegetation. Scattered mature hollow-bearing eucalypt species surround the cleared track along the extent of the road reserve.

In its current state, vegetation adjacent to the road reserve forms part of a larger patch of residual vegetation designated for development that is further fragmented by proximity to the rail line and adjoining road network. The viability of the surrounding vegetation patch as functional habitat is compromised by encroaching development and planning intent. Connectivity value in the broader landscape is limited by fragmented ecological values, roads and industrial and residential developments. Narrow connections to the vegetation patch have been retained to the north, however, these are somewhat compromised by limited width and further fragmenting factors such as clearing and road crossings. Retained vegetation to the east and west is earmarked for development within the Greater Flagstone PDA, which is anticipated to cause further fragmentation to the narrow strip of vegetation within the road reserve. Large portions of cleared areas exist to

the south, also planned for residential development as part of Flagstone City (EPBC 2014/7206). Therefore, it is considered that the referral area offers no significant ecological linkages to the north and south, due to lack of vegetation and existing fragmenting factors; and linkages to the east and west is limited by future planning intent.

Refer to attached *Att 1 8418 MNES Report 20230307, Figure 3 – Proposed Development, page 11*and *Plan 4 – Fragmentation Analysis*, *page 37.*

3.1.2 Describe any existing or proposed uses for the project area.

Currently exists as a cleared road and track and is used for water reservoir access and offroad vehicle use, illegal vehicle activity and rubbish dumping. The referral area sits within a highly urbanised and historically modified environment. It is located in proximity to residential developments, large commercial and transport infrastructure areas devoid of vegetation and other highly traversed roads; Teviot Road and Springfield Greenbank Arterial.

The proposed use of the referral area is for the upgrade of New Beith Road to provide a transport corridor for the surrounding development proposed within the Greater Flagstone PDA (refer to *Att 1 8418 MNES Report 20230307, Figure 3 – Proposed Development, page 11).*

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

Due to historical and on-going modification within the referral area, the site contains minimal outstanding natural features or other important or unique values. Vegetation throughout the referral area is generally consistent with Regional Ecosystem mapping with a variety of canopy tree species including *Eucalyptus tereticornis* (Forest Red Gum)*, Angophora leiocarpa* (Smooth-barked Apple)*, Corymbia citriodora* (Spotted Gum) and *Corymbia intermedia* (Pink Bloodwood). There are three (3) waterway crossings through the referral area which are considered to present the highest ecological value across the site. These areas are dominated by *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) with a canopy of *Eucalyptus tereticornis* (Forest Red Gum) and scattered *Angophora leiocarpa* (Smooth-barked Apple). Large mature hollow-bearing canopy trees remain scattered throughout the existing road reserve, which is typical for partially cleared road alignments. Evidence of fire disturbance is present through the central and southern extents of the road reserve with *Acacia sp.* regrowth dominating these areas. Invasive species are present throughout the referral area including *Paspalum mandiocanum* (Broad-leaved Paspalum)*, Chloris gayana* (Rhodes grass) and *Lantana camara* (Lantana).

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The referral area is undulating in areas although has fairly consistent elevation with only the southern extent containing lower-lying depression areas. Generally, the higher elevations are along the northern and central portions of the referral area, lowering in elevation towards the south where the waterway areas are located.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

Flora

A total of eighty-eight (88) flora species were recorded within the vegetation communities within the referral area during field surveys, as listed in *Att 1 8418 MNES Report 20230307, Appendix D, from page 69*. Of the eighty-eight (88) flora species recorded, fifty-eight (58) are native and thirty (30) species are exotic/native weed species.

The northern extent of the site is mapped as Category X (non-remnant) vegetation (6.48 ha) under the *Vegetation Management Act 1999* (VMA). The balance of the site in the southern extent is mapped as Category B (remnant) vegetation (10.11 ha) containing the Least Concern regional ecosystem 12.9-10.2, Of Concern RE 12.9-10.7 and composite Of Concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a.

Pre-clear RE mapping indicates the site was historically comprised of predominantly Least Concern RE 12.9-10.2, along with Of Concern composite RE 12.3.11 / 12.3.7, Of Concern RE12.3.7 and composite Of Concern RE 12.9-10.2 / 12.3.7. Additionally, Endangered composite RE 12.9-10.19a/12.9-10.12/12.9-10.7a is present at the northern extent of the road reserve on pre-clear mapping. Descriptions of the pre-clear regional ecosystems are presented below.

- RE12.9-10.2: *Corymbia citriodora subsp. variegata* +/- *Eucalyptus crebra* open forest on sedimentary rocks.
- RE12.9-10.7: *Eucalyptus crebra* +/- *E. tereticornis*, *Corymbia tessellaris*, *Angophora spp*. and *E. melanophloia* woodland on sedimentary rocks.
    - 12.9-10.7a: *Eucalyptus siderophloia*, *Corymbia intermedia* +/- *E. tereticornis* and *Lophostemon confertus* open forest. Occurs on Cainozoic and Mesozoic sediments in near coastal areas.
- RE12.3.11: *Eucalyptus tereticornis* +/- *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains usually near coast.
- RE12.3.7: *Eucalyptus tereticornis*, *Casuarina cunninghamiana subsp. cunninghamiana* +/- *Melaleuca spp.* fringing woodland.
- RE12.9-10.19: *Eucalyptus fibrosa subsp. fibrosa* woodland on sedimentary rocks.
    - 12.9-10.19a: *Corymbia henryi* and/or *Eucalyptus fibrosa subsp. fibrosa* open forest. Other commonly associated species include, *Corymbia citriodora subsp. ariegate*, *E. carnea*, *E. siderophloia*, *E. crebra* and *E. major*. Occurs in coastal areas on Cainozoic and Mesozoic sediments.
- RE12.9-10.12: Mixed woodland usually containing *Corymbia intermedia*, *Angophora leiocarpa* and at least the presence of *Eucalyptus seeana* on sedimentary rocks.

Vegetation across the referral area where native is generally consistent with pre-clear RE mapping with vegetation in the Eucalypt dominated areas consisting of a variety of canopy tree species including *Eucalyptus tereticornis* (Forest Red Gum)*, Angophora leiocarpa* (Smooth-barked Apple)*, Corymbia citriodora* (Spotted Gum) and *Corymbia intermedia* (Pink Bloodwood). Waterway areas along the road reserve are consistent with RE12.3.11 / RE12.3.7 mapping consisting of canopy species including *Eucalyptus tereticornis* (Forest Red Gum), *Grevillea robusta* (Silky Oak), *Lophostemon suaveolens* (Swamp Box), *Casuarina cunninghamiana* (River She-Oak) and *Melaleuca quinquenervia* (Broad-leaved Paperbark).

Understorey vegetation throughout the referral area consists of a mix of *Acacia sp.* and *Alphitonia excelsa* (Soap Tree) along with *Melaleuca viminalis* (Weeping Bottlebrush), *Allocasuarina littoralis* (Black she-oak) and *Lophostemon suaveolens* (Swamp Box) in some areas. The ground layer throughout is dominated by a mix of native and exotic species, including invasives *Megathyrsus maximus* (Guinea Grass), *Lantana camara* (Lantana), *Paspalum dilatatum* (Paspalum) and *Ageratum houstonianum* (Blue Billygoat Weed) with some natives scattered throughout including *Jacksonia scoparia* (Dogwood), *Lepidosperma laterale* (Variable Swordsedge), *Ottochloa gracillima* (Graceful grass) and *Lomandra longifolia* (Long-leaved Matrush). Invasive groundcover species are dominant in the northern Category X areas.

The balance of the referral area consists of cleared and maintained areas with scattered regrowth, cleared tracks and vehicle access points. Large hollow-bearing *Eucalypt sp.* remain adjacent to the cleared track within the road reserve, although evidence of logging through this area remains. Varying levels of weed infestations exist throughout the ground and shrub layer, specifically *Lantana camara* (Lantana). Land in the central portion of the referral area to the west has been subject to more recent and on-going modification resulting in a largely cleared area consisting of scattered trees, juvenile regrowth and exotic grasses.

Fauna

A total of forty (40) fauna species were recorded during field surveys, including twenty-three (23) birds, six (6) reptiles, two (2) amphibians, six (6) mammals and three (2) marsupials. Wild Dogs and Feral Pigs were captured on motion sensing cameras deployed within the referral area that appear to have access to all portions of the site. A complete fauna species list is provided in *Att 1 8418 MNES Report 20230307, Appendix D, from page 69*.

The majority of the site was assessed via targeted spotlighting surveys, and all species observed were recorded. No conservation significant fauna species or evidence of their activity were recorded during the field survey.

Further, targeted surveys to assess Koala activity within the referral area were completed in accordance with Philips and Callaghan (2011) (refer to attached *Att 1 8418 MNES Report 20230307, Appendix E, from page 69* for survey results). No evidence of Koala in the form of direct sightings or scats and scratch marks was detected within the referral area during these targeted surveys nor via incidental searches during tree plot or habitat surveys.

Targeted surveys of Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*), Greater Glider (*Petauroides volans*) and Grey-headed flying-fox (*Pteropus poliocephalus*) were also conducted onsite. No evidence of feeding “orts” of the Glossy Black-cockatoo were found onsite within scattered *Allocasaurina littoralis* and no direct sightings were observed. Although some large hollow-bearing trees are present along the road reserve, targeted hollow-watching and spotlighting surveys did not identify the Greater Glider within the referral area. Some flowering eucalypts were present during spotlighting activities although the Grey-headed Flying-fox was not recorded. No Grey-headed Flying-fox individuals were recorded during the referral area field surveys.

Refer to attached *Att 1 8418 MNES Report 20230307* for detailed technical methodologies and results.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The referral area consists a mix of Category X and Category B vegetation, with a small portion of Category C mapped through the centre of the site. On-ground vegetation characteristics were utilised to identify vegetation communities. Field surveys identified six (6) vegetation communities within the referral area (refer to attached *Att 1 8418 MNES Report 20230307, Plan 3 – Field Survey Effort and Mapped Vegetation Communities, page 32*).

1. Non-remnant cleared areas with scattered regrowth
2. Highly disturbed mapped remnant (RE12.9-10.2) vegetation with scattered mature Eucalypt species
3. Waterway with associated remnant (RE12.3.11/12.3.7) *Melaleuca* and *Lophostemon* dominated vegetation
4. Eucalypt dominated remnant (RE12.9-10.7a) vegetation
5. Flagstone Creek with associated remnant (RE12.3.11/12.3.7) vegetation
6. Remnant (RE12.9-10.2/12.9-10.7) Eucalypt dominant vegetation with *Acacia sp.* understorey

From pre-clear Regional Ecosystem mapping the site maintains Land Zone 9 / 10 across most of the road reserve extent with pre-clear RE 12.9-10.2 across majority of the site and composite endangered RE 12.9-10.19 / 12.9-10.12 / 12.9-10.7 across the non-remnant areas and small patches of RE 12.3.11 / 12.3.7 onsite.

The ASRIS maps the site as containing Chromosols. Chromosols have a strong contrasting texture. These are not strongly acid and are not sodic. The parent material of Chromosols ranges from highly siliceous, siliceous to intermediate in composition. These soils are found in imperfectly drained sites (yellow and grey chromosol) where rainfall is between 250mm and 900mm. They are also found in well-drained sites (brown and red chromosol) with rainfall between 350mm and 1400mm. These soils have moderate agricultural potential with moderate chemical fertility and water-holding capacity and can be associated with soil acidification and soil structure decline.

3.3 Heritage

3.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

No Commonwealth Heritage Places are known to be located on or adjacent to the site.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

No Indigenous heritage values are known for the site. A duty of care site assessment will be completed to identify any Aboriginal objects during an archaeological survey. Notwithstanding this result, the proponent is aware of their duty of care obligations and will engage with the traditional owners prior to the commencement of work.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The site contains three (3) waterway crossings and several low lying depression features associated with Abrade Creek in the north and Flagstone Creek in the south. One (1) waterway crossing is located at the northern extent of New Beith Road, the waterway associated with Abrade Creek. In this area, vegetation surrounding the waterway to the east includes *Lomandra longifolia* (Long-leaved Mat rush) with scattered *Alphitonia excelsa* (Soap Tree), *Acacia disparrima* (Hickory Wattle) and *Melaleuca quinquenervia* (Broad-leaved Paperbark). The drainage features through the northern extent of the site are mapped Category X (non-remnant). Significant infestation of *Lantana camara* (Lantana) is present through the northern drainage features.

There are two (2) waterways at the southern extent of New Beith road associated with Flagstone Creek. These waterways form low depressions and drainage features. Vegetation surrounding the waterways includes *Lophostemon suaveolens* (Swamp Box), *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Leersia hexandra* (Swamp Rice Grass). The mapped regional ecosystems which intersect the southern waterway areas are the composite RE 12.3.11/ 12.3.7. Although the road crossing is highly disturbed through the waterway, the waterway areas adjacent to the road reserve hold some ecological values at the southern extent.

Refer to the attached *Att 1 8418 MNES Report 20230307, Section 4.2.3 - Habitat Assessment and Vegetation Communities, page 27* for more details on the hydrology characteristics that apply to the project area.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No World Heritage Sites exist within or near to the referral area. No potential for impact on a World Heritage Property from the proposed action. The site is located over 50 km north west of the closest World Heritage area – Gondwana Rainforests of Australia (Qld Section) and therefore no anticipated impact will occur.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No National Heritage places exist within or near to the referral area. No potential for impact on a National Heritage place from the proposed action. The site is located over 50 km north west of Lamington National Park and Springbrook National Park, listed as Gondwana Rainforests of Australia on the National Heritage List. Due to the distance of the project site away from this area, it is unlikely that it will have an impact on any National Heritage places.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
No	No	Moreton Bay

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

A search of the EPBC PMST using a 5 km radius of the site identified that the closest wetland of international importance, Moreton Bay, is approximately 20 – 30 km upstream of the site (refer to attachment *Att 1 8418 MNES Report 20230307, Appendix A, from page 69*). No other wetlands of international importance occur within close proximity of the project extent. As the referral area is distant from the wetland and not directly connected to it, no direct or indirect impacts on the wetland are anticipated to occur as a result of the project construction and operation.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species
Yes	No	Anthochaera phrygia

Direct impact	Indirect impact	Species
No	No	Argynnis hyperbius inconstans
No	No	Arthraxon hispidus
No	No	Bosistoa transversa
No	No	Botaurus poiciloptilus
No	No	Calidris ferruginea
Yes	No	Calyptorhynchus lathami lathami
No	No	Chalinolobus dwyeri
No	No	Cupaniopsis tomentella
No	No	Cyclopsitta diophthalma coxeni
No	No	Dasyurus maculatus maculatus (SE mainland population)
No	No	Delma torquata
No	No	Dichanthium setosum
No	No	Erythrotriorchis radiatus
No	No	Falco hypoleucos
No	No	Fontainea venosa
No	No	Furina dunmalli
No	No	Geophaps scripta scripta
No	No	Grantiella picta
No	No	Hemiaspis damelii
No	No	Hirundapus caudacutus
Yes	No	Lathamus discolor
No	No	Macadamia integrifolia
No	No	Macadamia tetraphylla
No	No	Macroderma gigas
No	No	Notelaea ipsviciensis
No	No	Notelaea lloydii
No	No	Numenius madagascariensis
Yes	No	Petauroides volans
No	No	Petaurus australis australis
Yes	No	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)
No	No	Picris evae
No	No	Planchonella eerwah
No	No	Plectranthus habrophyllus
Yes	No	Pteropus poliocephalus
No	No	Rhodamnia rubescens

Direct impact	Indirect impact	Species
No	No	Rhodomyrtus psidioides
No	No	Rostratula australis
No	No	Samadera bidwillii
No	No	Thesium australe
No	No	Turnix melanogaster

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community
No	No	Grey box-grey gum wet forest of subtropical eastern Australia
No	No	Lowland Rainforest of Subtropical Australia
No	No	Poplar Box Grassy Woodland on Alluvial Plains
Yes	No	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions
No	No	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions

Field survey confirmed the areas mapped as RE12.3.11 / 12.3.7 within the referral area have potential to meet the key diagnostic characteristics of the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community outlined in *DCCEEW Approved Conservation Advice (2022)*. Direct impact to the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland* as part of the proposed action involves the clearing of approximately 1.23 ha of vegetation described as Regional Ecosystem 12.3.11 / 12.3.7 characteristic of the Threatened Ecological Community.

Regent Honeyeater (*Anthochaera phrygia*)

Field surveys determined the site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) were recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. It is anticipated a low likelihood that Regent Honeyeater are utilising the referral area and use would be limited to opportunistic foraging individuals. Direct impact to the species is approximately 13.57 ha of vegetation clearing in areas containing potential Regent Honeyeater foraging habitat.

No sighting of Regent Honeyeater, nor evidence of Regent Honeyeater, was recorded within the referral area.

South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*)

Field surveys located scattered isolated *Allocasuarina littoralis* (Black She-oak) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. Searches of these habitat areas did not identify feeding “orts” within *Allocasuarina littoralis* (Black She-oak) stands. It is considered a low likelihood the Glossy Black-cockatoo would utilise the referral area due to the limited and poor quality habitat on-site and the presence of higher quality habitat in the large tract of bushland to the west. Direct impact to the species is vegetation clearing in areas containing potential South-eastern Glossy Black-cockatoo foraging habitat.

No sighting of Glossy Black-cockatoo, nor evidence of Glossy Black-cockatoo, was recorded within the referral area.

Swift Parrot (*Lathamus discolor*)

Field surveys determined potential foraging habitat in Eucalypt dominated areas through the Category B vegetation within the referral area although higher quality habitat is present within the broader landscape, particularly large intact bushland further to the west. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat. Direct impact to the species is approximately 13.57 ha of vegetation clearing in areas containing potential Swift Parrot foraging habitat.

No sighting of Swift Parrot, nor evidence of Swift Parrot, was recorded within the referral area.

Greater Glider (*Petauroides volans*)

Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Records of this species have been recorded within 15 km of the site, in Flinders Peak Conservation Park on BioMaps. No recent records of the Greater Glider are recorded within the referral area and none are recorded within 5km of the site. Due to the high disturbance with vehicle use and other illegal uses, the modification of surrounding habitat and the presence of larger habitat areas to the west of the site it is considered a moderate to low likelihood this species would occur onsite. Direct impact to the species is approximately 13.57 ha of vegetation clearing in areas containing potential foraging and denning habitat for Greater Glider.

No sighting of Greater Glider, nor evidence of Greater Glider, was recorded within the referral area.

Koala (*Phascolarctos cinereus*)

It is anticipated that if Koala were to utilise the referral area it would be by opportunistic individuals traversing the vegetation within the southern extents, where fragmented connectivity and higher quality habitat is present. However if Koala were to utilise the referral area, they would be under threat from the wild dogs present on the site and be limited with the lack of vegetation in some parts to the west and south of the site due to the disturbance from vehicle use and other illegal uses through the northern and central portions. Direct impact to the species is approximately 13.57 ha of vegetation clearing in areas containing potential Koala habitat.

No sightings of Koala, nor evidence of Koala, was recorded within the referral area.

Grey-headed Flying-fox (*Pteropus poliocephalus*)

There are no observed Grey-headed Flying-fox roosts on-site, with the nearest roost located 5 km south-east of the site at Undulluh, Homestead Drive (464), with the latest survey in February of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals. Some flowering eucalypts were present during spotlighting activities although the Grey-headed Flying-fox was not recorded. There is a low likelihood the species would utilise the site, mainly as vagrant individuals foraging opportunistically across the site. The larger bushland areas to the west of the site presents higher quality habitat for the species. Direct impact to the species is approximately 13.57 ha of vegetation clearing in areas containing potential Grey-headed Flying-fox foraging habitat.

No Grey-headed Flying-fox individuals were recorded during field surveys.

Direct Impacts

To determine whether or not the proposed action is likely to have a significant impact on the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community, Regent Honeyeater, South-eastern Glossy Black-cockatoo, Swift Parrot, Greater Glider, Koala and Grey-headed Flying-fox an assessment against the EPBC Significant Impact Guidelines 1.1 was conducted (refer to attached *Att 1 8418 MNES Report 20230307, Sections 4.2, 4.3 and 5, from page 26)*.

The proposed action is predicted to directly impact habitat of threatened species and the listed ecological community through vegetation clearing of approximately 13.57 ha. Refining site values, desktop and detailed field analysis provided a breakdown of vegetation to be impacted, provided in *Att 1 8418 MNES Report 20230307, Plan 3 (page 32) and Section 5 (from page 49)*.

The project is predicted to impact non-remnant habitat features, which provides marginal habitat value for a range of native flora and fauna species. The impact area will mostly occupy vegetation identified as ‘Highly disturbed mapped remnant vegetation’ and ‘Non-remnant cleared areas with scattered regrowth’ (refer *Att 1 8418 MNES Report 20230307, Section 4.2.3, page 27*).

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.4.6 Describe why you do not consider this to be a Significant Impact. *

The proposed action is considered unlikely to have a significant impact on these matters protected under the EPBC Act. It is anticipated that existing disturbance levels and potential adverse impacts on identified MNES due to current uses and disturbance will not be exacerbated to any noteworthy level under the proposal.

Management procedures outlined in this referral are intended to ensure that any occurring matters will not be adversely impacted. These will include management plans conditioned under State approvals.

In essence, the proposed action is identified as having a low risk of significant impact on the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community, Regent Honeyeater (*Anthochaera phrygia*), South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*), Swift Parrot (*Lathamus discolor*), Greater Glider (*Petauroides volans*), Koala (*Phascolarctos cinereus*) and Grey-headed Flying-fox (*Pteropus poliocephalus*) when considering the details provided in the previous responses. However, to provide certainty to the person proposing to take the action on the recommendations of not a controlled action, the proposed action has been referred to the Department for assessment.

4.1.4.7 Do you think your proposed action is a controlled action? *

No

4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action. *

The proposed action is considered unlikely to have a significant impact on a matter protected under the EPBC Act.

Potential MNES considered to be at risk of a significant residual impact as a result of the proposed action were the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community, Regent Honeyeater (*Anthochaera phrygia*), South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*), Swift Parrot (*Lathamus discolor*), Greater Glider (*Petauroides volans*), Koala (*Phascolarctos cinereus*) and Grey-headed Flying-fox (*Pteropus poliocephalus*). It is noted that the risk of fauna species entering the impact area is deemed very low due to significant fragmentation, ongoing disturbances, threatening processes and higher quality habitat and wider connectivity remaining further to the west of the referral area. Ongoing development, residential areas and busy roads and rail lines provide further barriers to fauna including Koala and Greater Glider from entering the impact area. Thus the proposed action is unlikely to have a significant impact on the listed MNES, or any other protected matters assessed within this report. Therefore, the proposed action is not considered a controlled action, as follows.

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

The *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community was ground-truthed within the waterway corridors, intersecting part of the referral area. Species identified within the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community were reflective of the Of Concern RE12.3.11 and indicators of the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community observed within the proposed action area. The vegetation through the waterway areas is considered highly disturbed and contains significant weed infestation. Following assessment of the Significant Impact Guidelines, National Recovery Plan and Action Advice, the project is not considered to have a significant impact on the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community as the TEC only comprises a small patch of highly disturbed vegetation that is to be impacted onsite. As a result, the proposed development is identified as having a **low risk of significant impact** on the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* Threatened Ecological Community and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Regent Honeyeater

The action is unlikely to interfere substantially with the recovery of the Regent Honeyeater. Following assessment of the Significant Impact Guidelines, National Recovery Plan and Conservation Advice, the project is not considered to have a significant impact on Regent Honeyeater as the species only poor quality, fragmented potential habitat is to be impacted onsite. Further, the Action is not considered to interfere substantially with the recovery of the Regent Honeyeater as no residual impacts were identified (refer to attached *Att 1 8418 MNES Report 20230307, Plan 4 – Fragmentation Analysis, page 37)*. As a result, the proposed development is identified as having a **low risk of significant impact** on Regent Honeyeater and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Glossy Black-cockatoo

Small stands of low-quality habitat and foraging vegetation is available onsite for the Glossy Black-cockatoo. Following assessment of the Significant Impact Guidelines and Conservation Advice, the project is not considered to have a significant impact on Glossy Black-cockatoo as the species only poor quality, fragmented potential habitat is to be impacted onsite. As a result, the proposed development is identified

as having a **low risk of significant impact** on Glossy Black-cockatoo and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Swift Parrot

Due to its restricted extent and presence of only limited available foraging habitat for the Swift Parrot, it is considered a low likelihood the species would occur onsite. Following assessment of the Significant Impact Guidelines, National Recovery Plan and Action Advice, the project is not considered to have a significant impact on Swift Parrot as only poor quality, fragmented potential habitat is to be impacted onsite. Further, the Action is not considered to interfere substantially with the recovery of the Swift Parrot as no residual impacts were identified (refer to attached *Att 1 8418 MNES Report 20230307, Plan 4 – Fragmentation Analysis, page 37)*. As a result, the proposed development is identified as having a **low risk of significant impact** on Swift Parrot and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Greater Glider

The site is subject to high levels of historical modification and clearing, along with ongoing disturbances in the form of off-road vehicle use, rubbish dumping and other illegal uses. The action is unlikely to interfere substantially with the recovery of the Greater Glider. Following assessment of the Significant Impact Guidelines, and Conservation Advice, the project is not considered to have a significant impact on Greater Glider as the species is known to be adverse to disturbance and modified areas, and only poor quality, fragmented potential habitat is to be impacted onsite. As a result, the proposed development is identified as having a **low risk of significant impact** on Greater Glider and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Koala

The action is unlikely to interfere substantially with the recovery of the Koala. Following assessment of the Significant Impact Guidelines, National Recovery Plan and Action Advice, the project is not considered to have a significant impact on Koala as only poor quality, fragmented potential habitat is to be impacted onsite. Further, the Action is not considered to interfere substantially with the recovery of the Koala as no residual impacts were identified (refer to attached *Att 1 8418 MNES Report 20230307, Plan 4 – Fragmentation Analysis, page 37)*. As a result, the proposed development is identified as having a **low risk of significant impact** on Koala and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

Grey-headed Flying Fox

The Grey-headed Flying-fox is not considered to occur onsite, only as vagrant individuals foraging in Eucalypt dominated vegetation onsite. The action is unlikely to interfere substantially with the recovery of the Grey-headed Flying-fox. Following assessment of the Significant Impact Guidelines, and Conservation Advice, the project is not considered to have a significant impact on Grey-headed Flying-fox as only poor quality, fragmented potential habitat is to be impacted onsite. Further, the Action is not considered to interfere substantially with the recovery of the Grey-headed Flying-fox as no residual impacts were identified (refer to attached *Att 1 8418 MNES Report 20230307, Plan 4 – Fragmentation Analysis, page 37)*. As a result, the proposed development is identified as having a **low risk of significant impact** on Grey-headed Flying-fox and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (i.e., a not a controlled action or controlled action determination).

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Vegetation Clearing and Management Plan

A Vegetation Clearing and Management Plan (VC&MP) should form part of the broader management document submitted as part of the operational works application for the development site. The VC&MP should cover clearing of all vegetation listed in this report and include details on:

- Clearly show trees to be removed
- All civil works likely to impact on existing vegetation
- Temporary and permanent exclusion and protection fencing
- Roles and responsibilities for site contractors, the developer and the consultant group
- Stockpiling and site access locations

- A clearing sequence plan showing the commencement of clearing and direction of removal (this should be in conjunction with the Fauna Management Plan to allow for the appropriate flushing of fauna towards safe havens and/or the application of an appropriate relocation program)
- Links to weed management and revegetation proposals
- The stock piling and reuse of cleared vegetation

Fauna Management Plan

A Fauna Management Plan (FMP) should be prepared for potential impacts of the construction phase covering the loss of vegetated areas, isolated trees and likely barriers and impediments to local dispersal.

The FMP should link closely with the VC&MP and include details on:

- Species surveyed as using the site with a focus on those most likely impacted by development works
- A list of relevant State and Commonwealth legislation constraints and controls for the above listed fauna
- A plan showing existing habitat opportunities and locations
- Details of the threats to existing fauna species
- Clearing sequence plan from the VC&MP
- Management and mitigation measures i.e. temporary use of fauna exclusion fencing
- Fauna spotter role, contacts and certification
- Specific fauna management procedures for potential or known habitat trees

Fauna Spotter Catcher

A registered and suitability qualified fauna spotter catcher/ecologist will need to be employed for the construction phase of the project to implement a protocol of best management practises. Significant habitat features, should any be identified on site, will be flagged prior to clearing events and these areas supervised by an appropriately experienced Ecologist. Identified within the clearing supervision protocol should be flagging of hollow bearing trees, if present, followed by the removal of vegetation surrounding them. After 24 to 72 hours, these trees should then be removed. Trees must be directionally felled into open or already cleared areas.

The objective of this is to enable hollow dependant fauna an opportunity to move on their own accord as many species utilise multiple den/roost sites within a given home range should they occur. Certain areas could be identified and flagged as significant, such as old-growth trees with hollow resources and on-site identification to construction personnel will help reduce/avoid clearing. Where required, native fauna situated within areas to be cleared will be relocated to a secure area of similar habitat prior to the commencement of vegetation clearance works by a registered fauna spotter/catcher. Should any removal and relocation of nests be required, it is to be undertaken by a suitably qualified and experienced person and advice sought where necessary.

Major linkage corridors though adjoining development sites will include best-practice fauna passage design to meet relevant State guidelines *Att 1 8418 MNES Report 20230307, Plan 4 – Fragmentation Analysis, page 37*. In this fashion, ongoing effective fauna dispersal will be facilitated.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

Following assessment of the significant impact guidelines, the project is not considered to have a significant impact on any identified MNES as only a relatively small area of poor quality, fragmented habitat is to be impacted. Further, the Action is not considered to interfere substantially with the recovery of the any identified as MNES as no residual impacts were identified.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species
No	No	Actitis hypoleucos
No	No	Apus pacificus
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Calidris melanotos
No	No	Cuculus optatus
No	No	Gallinago hardwickii
No	No	Hirundapus caudacutus
No	No	Monarcha melanopsis
No	No	Motacilla flava
No	No	Myiagra cyanoleuca
No	No	Numenius madagascariensis
No	No	Rhipidura rufifrons
No	No	Symposiachrus trivirgatus
No	No	Tringa nebularia

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area. Following the likelihood of occurrence assessment, no species were identified as having a moderate or greater likelihood of occurring on-site.

A likelihood of occurrence assessment has been carried out by SHG using information from previous and contemporary ecological field surveys to assess the potential for listed threatened species and communities to utilise and / or occur on site. The likelihood assessment has been included at *Att 1 8418 MNES Report 20230301, Appendix C, from page 69* and identifies that significant features for migratory species are absent.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action does not comprise a nuclear action, and therefore a direct and / or indirect impact is not predicted.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not being taken in or proximal to a Commonwealth Marine Area. Commonwealth marine areas exists over approximately 30 km east of the project site therefore the proposed action is not likely to impact on this Commonwealth marine area.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is more than 300 km south of the Great Barrier Reef Marine Park, and is not considered to directly and / or indirectly impact upon it.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not located proximal to water resources that would impact a large coal mining development or coal seam gas.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not to occur on or adjacent to Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not to occur on or adjacent to Commonwealth heritage places overseas.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

The road is designated to proceed within the historical road reserve as per Development Scheme intent (refer to the attached *Att 2 EDQ Correspondence*).

Field assessments identified the site as containing some areas of potential habitat, although much of the referral area has been subject to historical land practises, clearing and modification with ongoing high levels of disturbance from reservoir access, off-road vehicle use, rubbish dumping and other illegal uses. The site is considered to be fragmented in the north due to residential development and is expected to become fragmented from the east and west with future planned development. Scattered mature canopy eucalypt species present potential habitat values, along with the waterway areas, although these areas consist of dense weed infestation at the ground and shrub layer.

The proposed action is therefore situated within a highly modified environment with minimal habitat quality and limited connectivity value.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	27/03/2023	No	High

1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 2 EDQ Correspondence EDQ Correspondence	27/03/2023	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

4.1.3.3 (Ramsar Wetland) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

4.1.4.9 (Threatened Species and Ecological Communities) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

4.1.5.3 (Migratory Species) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 8418 MNES Report 20230307 New Beith Road MNES Flora and Fauna	26/03/2023	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	24144972949
Organisation name	Saunders Havill Group Pty Ltd
Organisation address	9 Thompson Street, Bowen Hills, Qld, 4006
Representative's name	Lisa Fry
Representative's job title	Ecologist
Phone	0422889755
Email	lisafry@saundershavill.com
Address	9 Thompson Street, Bowen Hills, Qld, 4006

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Lisa Fry of Saunders Havill Group Pty Ltd**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	17151187594
Organisation name	Peet Flagstone City Pty Ltd
Organisation address	GPO Box 1114, Brisbane, Queensland 4001
Representative's name	Michael Stone
Representative's job title	General manager - QLD
Phone	07 3166 0308
Email	michael.stone@peet.com.au
Address	Level 3, 167 Eagle Street Brisbane QLD 4000

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Michael Stone of Peet Flagstone City Pty Ltd**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Michael Stone of Peet Flagstone City Pty Ltd**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Ecological Assessment – Matters of National Environmental Significance

EPBC Act Referral – MNES Flora and Fauna

New Beith Road, Flagstone, Queensland 4280

Prepared for Peet Flagstone City Pty Ltd
7 March 2023

Job 8418

saunders havill group

Document Control

Document: 8418, New Beith Road, Flagstone, Ecological Assessment – Matters of National Environmental Significance, prepared by Saunders Havill Group for Peet Flagstone City Pty Ltd, dated March 2023.

Document Issue

Issue	Date	Prepared By	Checked By
Issue A	27/03/2023	MD	AD

Prepared by

ABN 24 144 972 949
www.saundershavill.com

Table of Contents

Figures

Plans

Tables

1. Introduction

Saunders Havill Group (SHG) was engaged by Peet Flagstone City Pty Ltd to carry out an ecological assessment of Matters of National Environmental Significance (MNES) to support a referral under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The purpose of this report is to identify potential MNES, specifically listed threatened species and communities, that may be impacted by the proposed development ('the action') of land located at New Beith Road, Flagstone, Queensland ('the site').

1.1. Description of the Action

Peet Flagstone City Pty Ltd ('the Proponent') is proposing to upgrade and extend the southern end of New Beith Road, Flagstone. The site is centred on the coordinates – 27.76894, 152.93690 (refer **Figure 1** and **Figure 2** for site context and aerial imagery).

The total action impact area incorporating the works extent is approximately 17.12 hectares (ha) and 3.2 kilometres (km) in length, with a referral area inclusive of a 20 m buffer to the works extent totalling 30.16 ha. The proposed action is for an upgrade to New Beith Road to deliver a transport corridor required to service multiple Greater Flagstone Priority Development Area (PDA) development projects, some with EPBC Act approvals and some under assessment (refer **Figure 3** for the proposed development layout). The action will require the clearing of vegetation, although the road works extent aligns with the existing disturbed road reserve, much of which has been historically cleared.

1.2. Purpose

This ecological assessment has been prepared to support a referral to the Australian Government's Department of Climate Change, Energy, the Environment and Water ('the Department') for assessment against the EPBC Act. The purpose is to:

- Identify biodiversity values within or near the project area including MNES
- Identify potential impacts of the proposed action on MNES
- Present a list of measures to avoid, minimise and / or mitigate the identified impacts; and
- Provide an assessment against the *Significant Impact Guideline 1.1* for MNES identified as having the potential to be impacted by the action, at its broadest scope.

The findings of this assessment will identify if the action will result or is likely to result in a significant residual impact on MNES and determine if it should be made a controlled action.

1.3. Areas of Investigation

The areas of investigation for this ecological assessment include:

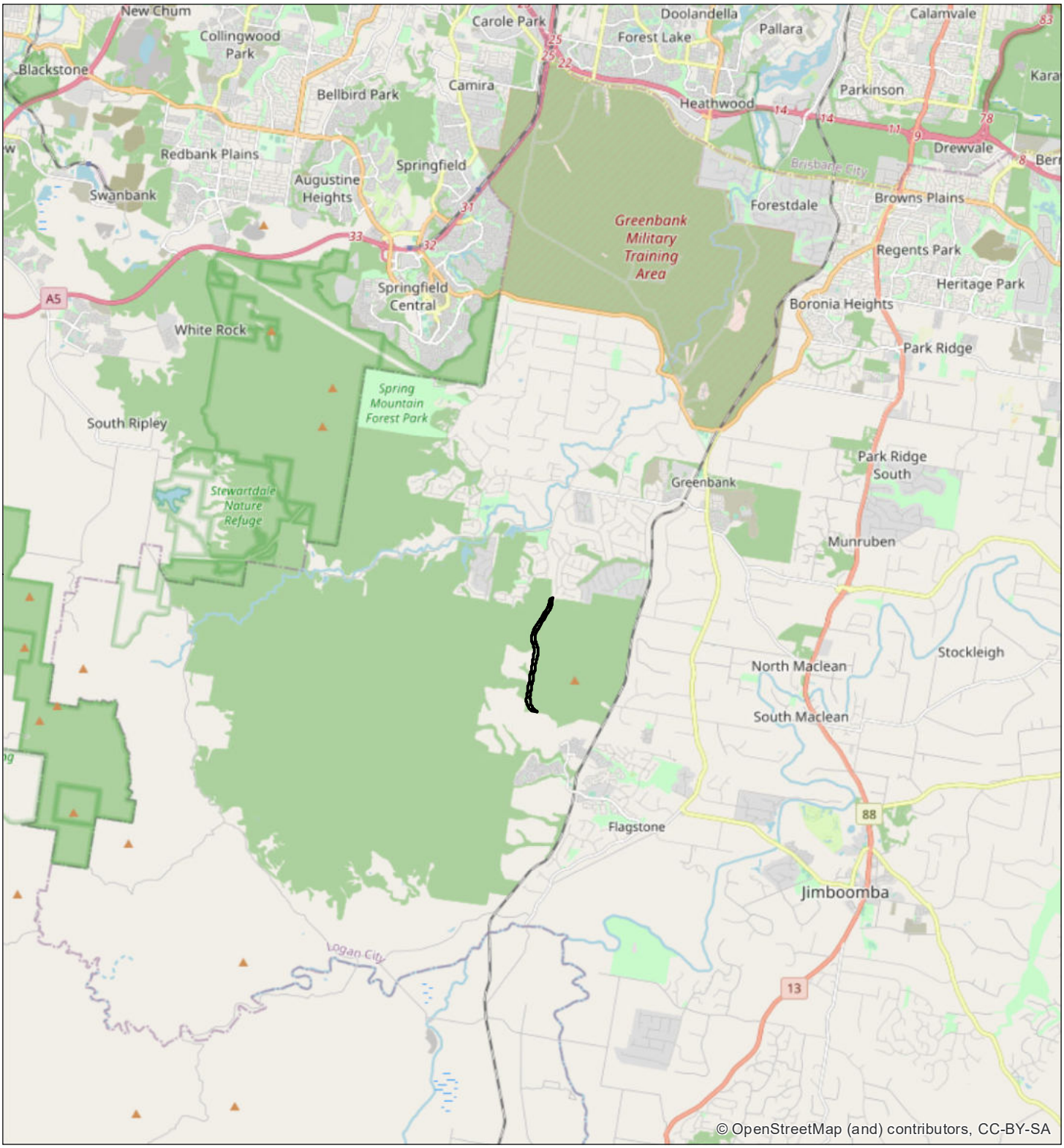
- Referral area – site centred on coordinates – 27.76894, 152.93690 with a referral area inclusive of a 20 m buffer to the works extent totalling approximately 30.16 ha.
- Locality – the extent of the 5 km radius database searches of the referral area.

1.4. Site Context

The site is positioned within the Greater Flagstone PDA. The surrounding locality is undergoing significant development, with a number of approvals for development within Greater Flagstone PDA to the south, along with surrounding

developments including Tarnbrae New Beith adjoining the road extent, Olson Road New Beith to the east, Undullah to the southwest and Greenbank to the north east. The trunk road upgrade is necessary to deliver a transport corridor to service the expanding population of the Flagstone PDA. Most adjoining developments have been determined a controlled action for the purposes of the EPBC Act, except for areas where development is assumed to predate the listing of the Koala (refer **Plan 1**).

The site itself has been subject to substantial historical disturbance including clearing for rural pursuits on land surrounding the road works extent and clearing within the existing road reserve for the current road (refer **Plan 2** for aerial history). Field surveys confirm the current road reserve consists of an existing gravel and paved road for the northern portion and cleared tracks through the southern portion, where surrounding vegetation has been impacted by clearing and ongoing disturbances including dust, noise and emissions from vehicle use and other illegal uses (vandalism, four-wheel driving and offroad vehicle damage).



Legend

Site DCDB

Figure 1

Site Context

PEET Flagstone City Pty Ltd

File ref. 8418 E Figure 1 Site Context A
Date 20/02/2023
Project New Beith Road

0 1 2 3 4 5 km

N

Scale (A4): 1:150,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2023

Legend

- New Beith Road referral area
- Greater Flagstone Priority Development Area
- Qld DCDB

Figure 2

Site Aerial

PEET Flagstone City Pty Ltd

File ref. 8418 E Figure 2 Site Aerial A
Date 20/02/2023
Project New Beith Road

0 100 200 300 400 500 m

N

Scale (A4): 1:16,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2023

Legend

- New Beith Road referral area
- Greater Flagstone Priority Development Area
- Qld DCDB
- Proposed road pavement extent
- Proposed road batters

Figure 3

Proposed Development

PEET Flagstone City Pty Ltd

File ref. 8418 E Figure 3 Proposed Development A
Date 20/02/2023
Project New Beith Road

0 100 200 300 400 500 m

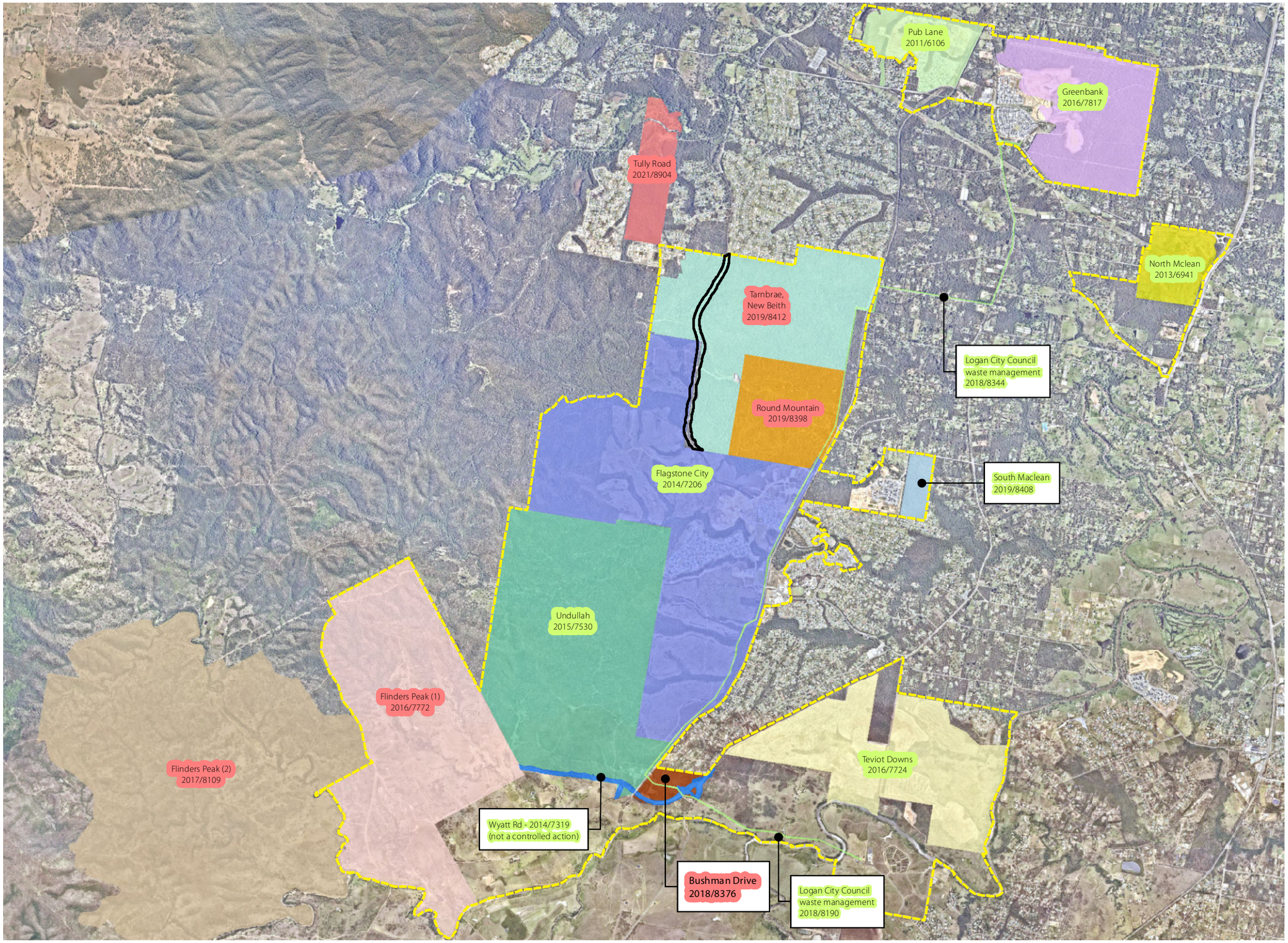
N

Scale (A4): 1:16,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2023

1. Current Development & EPBC Assessments/Decisions



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
© Nearmap, 2023

Legend

- Greater Flagstone PDA Extent
- New Beith Road referral area
- EPBC Determination
- EPBC Referral assessment

Issue	Date	Description	Drawn	Checked
A	27/02/2023	Preliminary	TC	AD

0 1 2 km

Transverse Mercator | GDA 1994 | Zone 56 | 1:60,000 @ A3

saunders havill group

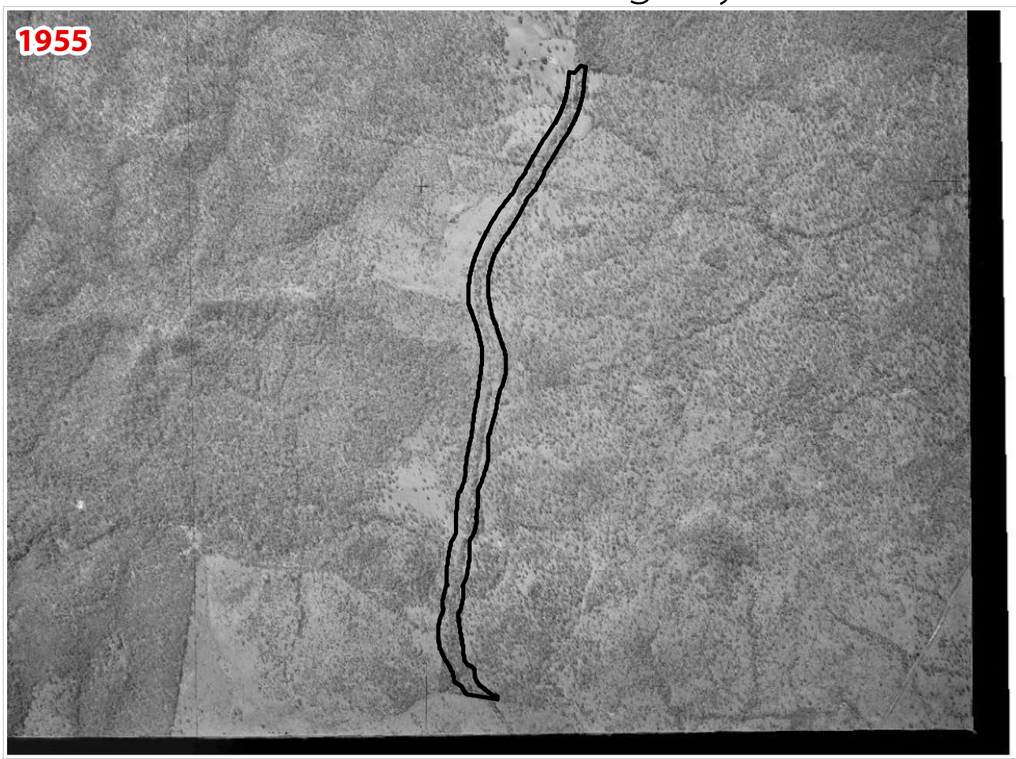
Peet Flagstone City Pty Ltd

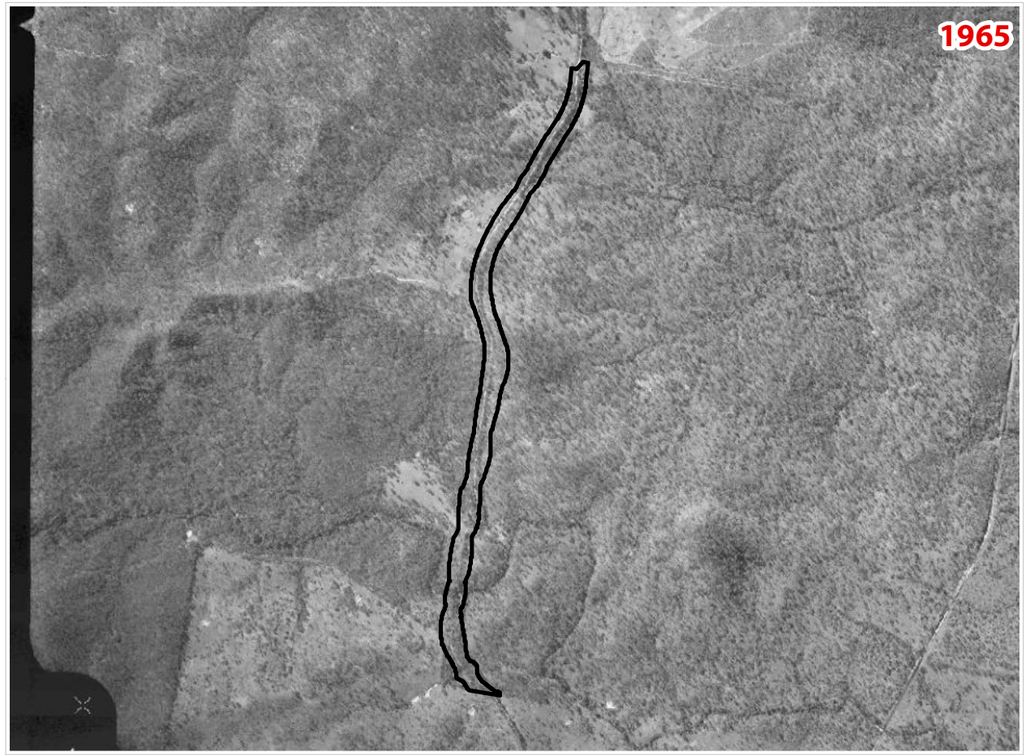
New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 01 Development Decisions A

2. Historical Aerial Imagery





Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
© State of Queensland (Department of Resources) 2023.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/ 2023

Legend

New Beith Road referral area

Issue	Date	Description	Drawn	Checked
A	27/02/2023	Preliminary	TC	AD

0 200 400 600 800 1,000 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:30,000 @ A3

saunders havill group

Peet Flagstone City Pty Ltd

New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 02 NBR Historical Imagery A

2. Commonwealth Legislation and Policy

2.1. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a requirement for Commonwealth environmental assessment and approval for actions that are likely to have a significant impact on any MNES protected under the EPBC Act, including:

- World heritage properties;
- National heritage places;
- Wetlands of international importance (listed under the Ramsar Convention);
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements;
- Commonwealth marine areas;
- The Great Barrier Reef;
- Nuclear actions (including uranium mines); and
- A water resource, in relation to coal seam gas development and large coal mining development.

Other matters protected under the EPBC Act, include:

- The environment, where actions proposed are on, or will affect Commonwealth land and the environment; and
- The environment, where Commonwealth agencies are proposing to take an action.

When a proponent proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposed action to the Australian Government Minister for the Environment (the Minister). The purpose of the referral is to determine whether or not a proposed action is a 'controlled action' and thereby requires approval under the EPBC Act. If the Minister determines that a proposed action is a 'controlled action', it would then proceed through the Commonwealth assessment and approval process.

2.1.1 Significant Impact Guidelines 1.1.

The purpose of these guidelines is to assist any person who proposes to take an action to decide whether or not they should submit a referral to the Department for a decision by the Australian Government Environment Minister (the Minister) on whether assessment and approval is required under the EPBC Act.

2.2. EPBC Act Environmental Offsets Policy

The *EPBC Act Environmental Offsets Policy* (2012) (EOP) outlines the Commonwealth Government's approach to the use of environmental offsets under the EPBC Act. The EOP applies to both project-by-project assessments and approvals under Part 8 and Part 9 of the EPBC Act.

The EOP provides a framework on the use of environmental offsets under the EPBC Act including when offsets are required, how offsets can be delivered, and the framework under which they operate. Offsets are not required for all

approvals under the EPBC Act and the EOP is only triggered when significant residual impacts to matters protected under the EPBC Act are unavoidable. The EOP relates to all matters protected under the EPBC Act.

The EOP applies to offsetting requirements in both terrestrial and aquatic (including marine) environments. It requires that an environmental offset under the EPBC Act be suitable and *'delivers an overall conservation outcome that improves or maintains the viability of the protected matter(s)'.*

3. Assessment Methodology and Process

3.1. Desktop analysis

Prior to the commencement of field surveys, a desktop analysis was conducted of Commonwealth, State and Local environmental databases and overlay mapping to identify potential MNES and included the following:

- Commonwealth MNES protected under the EPBC Act on and around the site using the protected matters search tool with a 5 km radius (**Appendix A**);
- *Nature Conservation Act 1992* (NCA) listed threatened species on and around the site using the wildlife online database search tool with a 5 km radius (**Appendix B**);
- Public environmental databases including Atlas of Living Australia (ALA) and BioMaps;
- State regulated vegetation management and vegetation supporting maps under the *Vegetation Management Act 1999* (VMA) including essential habitat mapping; and
- Local government records where MNES threatened species and communities are known to occur in the area.

Additionally, a review of aerial photography history was undertaken via QImagery to assist with the broad delineation of vegetation communities and to determine historical patterns to local vegetation communities.

Initial desktop assessment identified seven (7) threatened ecological communities (TECs), eighteen (18) threatened flora species, thirty (30) threatened fauna species and seven (7) migratory species as having the potential to occur within 5 km of the referral area (refer **Appendix A**) excluding migratory marine and fish species. An initial assessment for the likelihood of occurrence was undertaken based on desktop survey to inform field survey methodology for target flora and fauna species and communities.

3.2. Field survey methodology

A field survey utilising the methods outlined in the following subsections was conducted to describe ecological value of the referral area. Field surveys were undertaken during seasonal conditions generally favourable to the detection and identification of flora and fauna species. Field survey methods were determined based on target species and communities and EPBC Act listed species guidelines.

Field surveys at the site were undertaken in two tranches. The first survey effort occurred on 28 – 29 November 2022 and was primarily focused on assessment of the vegetation communities for ground truthing the State mapping layers. The second round of survey focused on MNES and occurred over two spotlighting nights on 12 – 13 December 2022 (**Table 1**). Field surveys utilising the methods outlined in the following subsections were conducted to describe and record the ecological values of the subject site.

Table 1: Field Survey Methods Summary

Date	Weather Conditions	Methods
28 – 29 November 2022	19.7°C min – 33.6°C max, 33.8 mm rainfall	Vegetation assessments, diurnal searches habitat feature identification and fauna camera trapping.
12 – 13 December 2022	16.5°C min – 32.4°C max, 21.6 mm rainfall	Diurnal searches SAT's and spotlighting.

Source: Greenbank (Defence) (140009), BOM 2023

3.2.1 Spot Assessment Technique (SAT) and Koala habitat surveys

Spot Assessment Technique (SAT) surveys were conducted in areas with potential Koala food trees across the site. These were located within more established and less disturbed vegetation with an emphasis on areas containing potential habitat. The aim was to assess Koala usage of the site.

Spot Assessment Technique surveys follow the methodology designed by Phillips and Callaghan (2011). It involves a single ecologist combing the ground under Koala food plant trees (or non-food plant trees if necessary) for a 1-metre radius around the trunk searching for scats. Each tree searched must be greater or equal to 100 mm diameter at breast height (DBH) and search of each tree continues for up to 2 minutes. The search can cease prior to the 2-minute limit if scats are detected. Thirty trees meeting the specifications are analysed during each SAT survey. Meanders involve walking a winding transect and checking under all trees meeting specifications encountered. Detailed records of each tree are not recorded unless scats are detected. The location of the meander is recorded.

3.2.2 Observational survey for significant flora and fauna, habitat trees and biodiversity values

The referral area was entirely walked on multiple occasions to ensure all species (flora and fauna) were recorded and identified. Particular attention was paid to any threatened species that were listed as possibly occurring on or within the vicinity of the referral area and specific micro-assemblages which may support these threatened species. This included observations for vertebrate fauna present on or that may utilise the referral area, including faunal lists and significance status of species under the Commonwealth's EPBC Act including the JAMBA, CAMBA, ROKAMBA and the Bonn Convention, and Queensland's NCA.

The observational survey included identification of ecological features and values such as broad vegetation communities, fauna habitats, and ecological corridors. Identification and description of the fauna habitats present within the area included any habitat trees. Specific attention was paid to threatened flora and fauna species.

For the purposes of this report, a significant flora and fauna species has been defined as a species that is scheduled as 'critically endangered', 'endangered', 'vulnerable' or conservation dependent under the Commonwealth EPBC Act.

3.2.3 Scats, tracks and other traces search

Surveys for scats, tracks and other fauna traces were conducted throughout field surveys in 2022. Both predator and non-predator scats were sought during all searches. Specific search efforts were made to locate the presence of Koalas or evidence of their occurrence on the subject lands and the local area. In addition, particular attention was paid to the identification of potential dens, scats and tracks for invasive species, such as Wild Dogs, European Red Fox and domestic Cats, to identify predator-prey interactions and understand existing impacts within the referral area.

3.2.4 *Nocturnal active searches and spotlighting*

This non-intrusive survey technique is the most effective method to obtain estimates of nocturnal arboreal mammal incidence and abundance in wooded habitats. Spotlighting also targets medium to large terrestrial nocturnal mammals, and can detect other nocturnal taxon groups (e.g., frogs, geckoes, nocturnal snakes, nocturnal birds, spiders).

A combination of high-powered spotlights and head torches were used to sample for nocturnal mammals, birds, reptiles and frogs across the proposed action area. This technique involved detecting eye shine, and a record of vegetation density was taken.

3.2.5 *Motion Sensor Camera Trap*

Camera trapping involves setting up a fixed digital camera to capture images or video of animals that pass in front of a camera with an infrared trigger. It is a non-invasive technique designed to detect medium to large sized animals as they pass, although it is possible to detect smaller animals depending on the set-up. This method identifies fauna activity beyond the scope of direct observational studies and with the absence of potential observer impacts.

Infrared sensing cameras with an infrared flash that use motion to trigger were deployed. Four (4) cameras were installed across the referral area. Cameras were located in potential habitat and adjoining watercourses. Cameras were attached to a tree 30-50 cm from the ground and directed towards an area likely to be used by fauna. The cameras were left to record for 14 nights, meeting the *Survey guidelines for Australia's threatened mammals* recommended timeframe. The cameras were baited to attract fauna and target evidence of wild dogs and other potential threats to MNES.

For inventory surveys, cameras were placed in the vicinity of an assumed animal trail or activity area. Heavy vegetation was avoided as this can cause false triggering, and the camera was aimed to avoid sun shining directly onto the lens. The camera position was directed towards an area away from other frequent survey activity.

3.2.6 *Fauna movement barrier assessment*

A combination of contemporary aerial imagery, locality knowledge and field inspection can assist in understanding if there are barriers to fauna movement in the landscape. Once the aerial imagery is interrogated, location(s) for inspection are selected (typically roads) and barriers identified.

3.3. Likelihood of Occurrence Assessment

The likelihood of occurrence assessment was based upon publicly available species records and/or other information sources, such as field guides and web-based species profiles, including but not limited to:

- Australian Government's *Species Profile and Threats Database* (SPRAT) for the threatened species and ecological communities listed under the EPBC Act; and
- Queensland Government's *Department of Environment and Science* (DES) threatened species website.

The likelihood of occurrence assessment was informed by desktop assessment and field survey results, including an appreciation and understanding of the species habitats within the referral area. The assessment adopts a two-tiered approach; the first based on desktop analysis and the potential of occurrence and the second based on a combination of desktop and field survey to determine the likelihood of occurrence.

The likelihood of threatened species and ecological communities occurring in the referral area has been assessed against the criteria outlined in **Table 2**.

Table 2: Likelihood of occurrence assessment criteria

Likelihood of occurrence	Assessment criteria
Unlikely	No previous records of the species within the locality and one or more of the following criteria is met: • Not previously recorded on the referral area and surrounds and the referral area is beyond the current known geographic range; or • Dependent on specific habitat types or resources that are not present on the referral area; or • Considered extinct in the wild.
Low	No previous records of the species within the locality and one or more of the following criteria is met: • Site and local connectivity contains marginal habitat excluding suitable/critical habitat attributes; • Lack of recent records exist in a regional context (use 1980 as a delineation); or • Potential for vagrant or individual of the species to survive short-term;
Moderate	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded in proximity to the referral area (*i.e.,* vagrant individuals); or • Potential habitat typologies or resources are present on the referral area.
High	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded on the referral area; • Dependent on habitats or habitat resources that are available on the referral area; or • Suitable habitats are available on the referral area that are capable of supporting a resident population or individuals of the species.
Known	Flora species or ecological community positively identified during field surveys within the referral area. Fauna species positively recorded during field surveys within the referral area or adjacent habitats.

3.4. Study Limitations

The ecological assessment involves a combination of desktop assessments and field investigations and has relied on publicly available information and data. The likelihood of occurrence assessment has relied upon database searches and publicly available information that relates to the referral area and broader locality. Field surveys focussed on verifying the vegetation and essential habitat mapped by the State Government and flora and fauna surveys targeting threatened species identified by database searches.

The field surveys targeted those threatened species or communities which have either been previously recorded or predicted to occur in the locality, and as such were assessed as having a moderate or high likelihood of occurring on the referral area.

Fauna surveys utilised a combination of passive and active methods for detection, including spotlighting, SATs, Scat meanders visual identification and inferential evidence of habitat usage (e.g. scratches, scats, burrows, active nests etc). No physical trapping was conducted as part of the fauna surveys, as the target species and degraded habitat values in the referral area did not justify the need for such surveys.

4. Ecological Assessment Results

4.1. Desktop Assessment

4.1.1 Landscape Context and Historical Aerial Imagery

The site is positioned within the Greater Flagstone PDA. The surrounding locality is undergoing significant development, with a number of approvals for development within Greater Flagstone PDA to the south, along with surrounding developments including Tarnbrae New Beith adjoining the road extent, Olson Road New Beith to the east, Undullah to the southwest and Greenbank to the north east. The trunk road upgrade is necessary to deliver a transport corridor to service the expanding population of the Flagstone PDA. Most adjoining developments have been determined a controlled action for the purposes of the EPBC Act, except for areas where development is assumed to predate the listing of the Koala (refer **Plan 1**).

The site itself has been subject to substantial historical disturbance including clearing for rural pursuits on land surrounding the road works extent and clearing within the existing road reserve for the current road (refer **Plan 2** for aerial history). Field surveys confirm the current road reserve consists of an existing gravel road for the northern portion and cleared tracks through the southern portion, where surrounding vegetation has been impacted by clearing and ongoing disturbances including dust, noise and emissions from vehicle use and other illegal uses (vandalism, four-wheel driving and offroad vehicle damage).

4.1.2 Matters of National Environmental Significance

Based upon the database searches and the findings of the desktop assessment, MNES identified as being of potential relevance to the project include threatened flora and fauna species and migratory fauna species.

4.1.3 EPBC Act Threatened Ecological Communities

The Protected Matters Search Tool (PMST) (refer **Appendix A)** returned the following seven (7) threatened ecological communities (TEC), listed under the EPBC Act as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland
- Grey box-grey gum wet forest of subtropical eastern Australia
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on alluvial Plains
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The likelihood of occurrence for each TEC within the referral area, as presented in **Table 3**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs, to identify those TECs with potential to occur in the referral area or recorded during field surveys. All TECs were identified as having low potential to occur based on site characteristics and vegetation mapping, aside from the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions* (SEFFW) which returned a moderate potential to occur. The detailed likelihood of occurrence assessment is presented in **Appendix C**.

Table 3: Likelihood of occurrence of TECs within referral area

TEC	EPBC Act status	Desktop Potential of Occurrence
Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community	Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Grey box-grey gum wet forest of subtropical eastern Australia	Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Lowland Rainforest of Subtropical Australia	Critically Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threated ecological community.
Subtropical eucalypt floodplain and woodland of the New South Wales North Coast and South East Queensland Bioregions	Endangered	**Moderate** Desktop analysis confirm the Of Concern RE12.3.11 occurs onsite. This RE was found to be associated with a small creek crossing area within the New Beith Road reserve. The current road passes directly through the vegetation described as the RE 12.3.11.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	**Unlikely** The site is not mapped as containing any regional ecosystems associated with this threated ecological community.

4.1.4 Threatened Flora Species

Database searches returned twenty (20) flora species, listed as threatened under the EPBC Act and/or NCA, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A** and **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, an assessment was conducted to determine those threatened flora species with potential to occur within the referral area. The desktop assessment did not identify any threatened flora species to have had a 'moderate' potential to occur on the referral area All threatened flora species were assessed as having a low or unlikely potential to occur.

The detailed likelihood of occurrence assessment is presented in **Appendix C**.

4.1.5 Threatened Fauna Species

Database searches returned thirty-two (32) fauna species listened as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the referral area.

Based on the presence of species records within the locality and mapped habitats identified within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened species with potential to occur within the assessment area. This assessment determined four (4) threatened fauna species listed under the EPBC Act and/or NCA as having 'moderate' or higher potential to occur on or near the referral area. In addition, the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*) have been included due to the presence of potential foraging habitat onsite. These species are outlined in
Table 4 below. All other threatened and/or migratory fauna species were assessed as having a 'low' or 'unlikely' potential to occur.

Table 4: Likelihood of occurrence of fauna species within referral area

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
Anthochaera Phrygia (Regent Honeyeater)	Critically Endangered	Endangered	**Low (potential foraging habitat)** Regent Honeyeaters occupy dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister more fertile sites, with an abundance of large trees and mistletoes. The site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) was recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. A record of the Regent Honeyeater is present on ALA within bushland approximately within 5 km south-west of the referral area. Vegetation onsite represents potential foraging habitat for this species. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.
Calyptorhynchus lathami lathami (South-eastern Glossy Black-cockatoo)	Vulnerable	Vulnerable	**Moderate** Potential habitat for this species as open sclerophyll forests and woodlands with a stratum of *Allocasuarina* sp. beneath *Eucalyptus*, *Corymbia* or *Angophora*, occur within and adjacent to the New Beith Road reserve, within Category B (remnant) vegetation. Records of the species approximately 8 km west of the road reserve were recorded in 2021 on ALA. Suitable foraging and breeding habitat for this species suggests a 'moderate' likelihood of occurrence on site.
Lathamus discolor (Swift Parrot)	Critically Endangered	Endangered	**Low (potential foraging habitat)** The Swift Parrot breeds in Tasmania during spring to early summer and migrates to the mainland during autumn and winter to forage. Large portions of the referral area are mapped as Category X (non-remnant) under the Queensland *Vegetation Management Act 1999* where high levels of disturbance occur throughout the road reserve. There are no records of the species within 5 km of the site on ALA. Suitable foraging habitat may be present onsite, although higher quality habitat is present within the broader landscape,

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
			particularly large intact bushland to the west of the referral area. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.
Petauroides Volans (Greater Glider)	Endangered	Vulnerable	**Moderate** A variety of eucalypt species occur within and adjacent to the New Beith Road reserve, however, some areas of Category X vegetation are highly disturbed. Although clearing has occurred throughout the centre of the road reserve, large hollow-bearing trees remain either side of the track in some areas. Portions of the New Beith Road reserve extent and surrounding vegetation are mapped as Category B (remnant) under the Vegetation Management Act 1999 (QLD). The site is mapped as containing vegetation of the Least Concern Regional Ecosystems 12.9-10.2 and Of Concern RE 12.9-10.7, composite Of Concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. As the species is known to occur within the broader landscape as well as the presence of potential habitat within the referral area, the likelihood of occurrence has been assigned 'moderate' to 'low'.
Phascolarctos cinereus (Koala)	Endangered	Endangered	**Moderate** Portions of the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site is mapped as containing vegetation of the Least Concern Regional Ecosystem 12.9-10.2, Of Concern RE 12.9-10.7 and composite Of Concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Koala food trees are indicator species for these Regional Ecosystems and are present on the referral site. As the Koala is known to occur within the broader landscape as well as the presence of potential habitat within the referral area, the likelihood of occurrence has been assigned 'moderate'.
Pteropus poliocephalus (Grey-headed Flying-fox)	Vulnerable	-	**Moderate** Large areas of the road reserve are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (Qld). The site is mapped as containing vegetation of the Least Concern regional ecosystems 12.9-10.2, Of Concern RE 12.9-10.7 and composite Of Concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. The canopy species within these regional ecosystems indicate potential foraging habitat may be present within the referral area.

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
			There are no observed Grey-headed Flying-fox roosts on-site, and the nearest roost located approximately 5 km south-east of the site at Homestead Drive (464), with the latest survey in August of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals. As the species is known to forage in a variety of habitats, including open woodland areas present on-site, a desktop assessment of the likelihood of occurrence has been assigned 'moderate'.

The detailed likelihood of occurrence assessment is presented in **Appendix C**.

4.1.6 Migratory Species

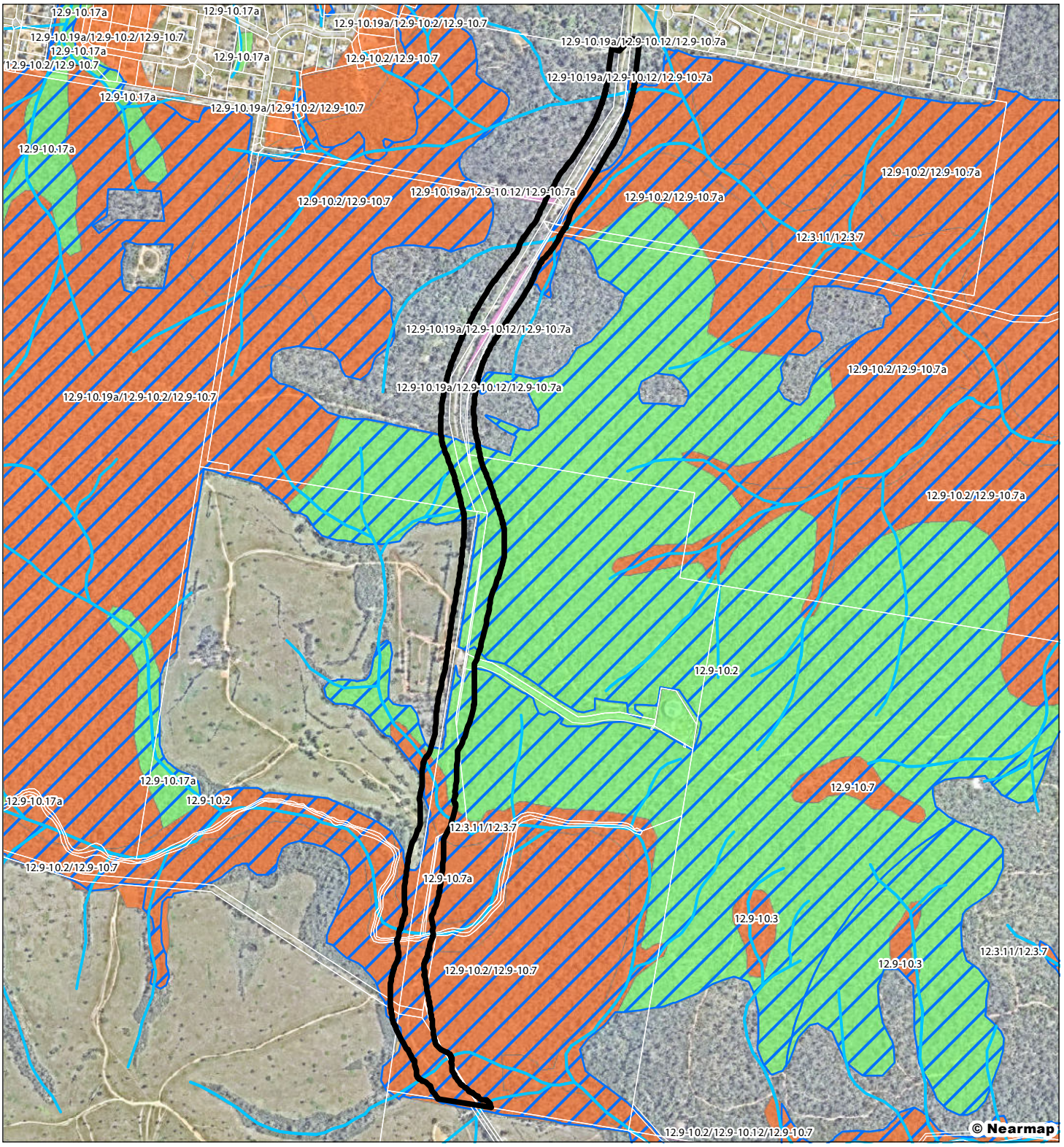
Database searches returned seven (7) migratory fauna species listed as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the Referral area.

Based on the presence of species records within the locality and the potential habitats identified within the referral area, an assessment was conducted to determine those threatened species with potential to occur within the referral area. The assessment determined that no threatened migratory fauna species listed under the EPBC Act and/or NCA were identified as having moderate or greater potential to occur in the referral area. All migratory fauna species were assessed as having a low potential to occur.

The detailed likelihood of occurrence assessment is presented in **Appendix C**.

4.1.7 State Mapped Vegetation

A desktop review of the Queensland 'Regulated Vegetation Management Mapping' under the *Vegetation Management Act 1999* (VMA) was conducted, focusing on the referral area and buffer area of 30.16 ha. The northern extent of the site is mapped as Category X (non-remnant) vegetation (6.48 ha) under the *Vegetation Management Act 1999* (VMA). The balance of the site in the southern extent is mapped as Category B (remnant) vegetation (10.11 ha) containing the Least Concern Regional Ecosystem 12.9-10.2, Of Concern RE 12.9-10.7 and composite Of Concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a (**Figure 4**).



Legend

- New Beith Road referral area
- Qld DCDB
- VM Watercourses
- VM Essential Habitat
- VM Wetland

Vegetation Management Regional Ecosystems Map

- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem

Figure 4

Vegetation Management Regional Ecosystem Map

PEET Flagstone City Pty Ltd

File ref. 8418 E Figure 4 VMRE A
Date 20/02/2023
Project New Beith Road

0 100 200 300 400 500 m

N

Scale (A4): 1:16,000 [GDA 1994 MGA Z56]

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4.2. Field Surveys

The results of the flora and fauna surveys, and the potential of occurrence, enables an understanding of the ecological constraints and potential impacts to MNES associated with the Project.

The results of the targeted vegetation, flora and fauna surveys is presented within the following sections. Refer to **Plan 3** for the 2022 MNES specific field survey effort undertaken across the referral area and surrounding locality.

4.2.1 Ecological context of referral area

The field surveys included three (3) SAT surveys for Koala usage, deployment of motion sensory cameras and active searchers for MNES (**Plan 3**). No Koalas or Koala scats were recorded on the referral site. The entire site was searched for trees bearing hollows and other arboreal habitat. The majority of hollow bearing trees were found in mature canopy eucalypt species within the road reserve. Scattered arboreal termite nests hollows were also observed.

Field surveys have mapped out the vegetation communities on-site and identified scattered eucalypt species throughout the referral area representing potential foraging habitat for the Koala, although vegetation across the site is relatively disturbed (**Plan 3**). These eucalypt species may also provide foraging habitat and shelter or other native fauna. No evidence of Koala activity in the form of scats or direct observation, nor any other listed MNES, was recorded on site.

In its current state, the site forms part of a larger patch of residual vegetation designated for development that is further fragmented by proximity to the existing residential development and adjoining road network (**Plan 4**). The viability of the vegetation patch as functional habitat is compromised by encroaching development and planning intent. Only relatively narrow connections to the vegetation patch have been retained and these are somewhat compromised by limited width and further fragmenting factors such as clearing and road crossings. The level of fragmentation and disturbance is perhaps reflective of the absence any significant fauna activity records.

4.2.2 EPBC Act Threatened Ecological Communities

As outlined in **Section 4.1.3**, The Protected Matters Search Tool (PMST) (**Appendix A**) returned the following seven (7) threatened ecological communities (TECs), listed under the EPBC Act, as having potential to occur within 5 km of the Referral area:

- Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland
- Grey box-grey gum wet forest of subtropical eastern Australia
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions
- White Box-Yellow Box-Blakely's Red Gum Gassy Woodland and Derived Native Grassland

The potential of occurrence for each TEC within the referral area, as presented in **Appendix C**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs to identify those TECs with potential to occur in the referral area or recorded during field surveys. The results of the likelihood of occurrence assessment determined that the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions* (SEFFW) has a 'moderate' potential to occur within the referral site.

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions

Desktop analysis and field surveys confirm the Of Concern RE12.3.11 occurs onsite. This RE was found to be associated with a small creek crossing area within the New Beith Road reserve. The current road and associated existing impacts passes directly through the vegetation described as RE 12.3.11, compromising its integrity

Field verification surveys confirmed that no other TECs have potential to occur in or adjoining the referral area.

4.2.3 Habitat Assessment and Vegetation Communities

The following section discusses the results of the field verification surveys of vegetation communities within the referral area. On-ground vegetation characteristics were utilised to delineate vegetation communities. Field surveys identified six (6) vegetation communities within the referral area (refer **Plan 3**).

1. Non-remnant cleared areas with scattered regrowth
2. Highly disturbed mapped remnant (RE12.9-10.2) vegetation with scattered mature Eucalypt species
3. Waterway with associated remnant (RE12.3.11/12.3.7) *Melaleuca* and *Lophostemon* dominated vegetation
4. Eucalypt dominated remnant (RE12.9-10.7a) vegetation
5. Flagstone Creek with associated remnant (RE12.3.11/12.3.7) vegetation
6. Remnant (RE12.9-10.2/12.9-10.7) Eucalypt dominant vegetation with *Acacia sp*. understorey

The site is mapped as containing Category X (non-remnant) vegetation in the northern extent of the road reserve. In this area, the eastern side is confirmed to be mostly cleared underneath a powerline easement adjacent to the existing track. Three waterways traverse the road reserve, one in the north associated with Abrade Creek, a second in the south associated with Flagstone Creek and slightly to the north of this, a tributary of Flagstone Creek. The Regional Ecosystems that were ground truthed to present on site are the Least Concern regional ecosystem 12.9-10.2, Of Concern RE 12.9-10.7, composite Of Concern RE 12.3.11/12.3.7 and composite Of Concern RE 12.9-10.2/12.9-10.7 are described below. It is noted a small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Vegetation across the referral area where present in the eucalypt dominated areas is generally consistent with RE mapping, consisting of a variety of canopy tree species including *Eucalyptus tereticornis* (Forest Red Gum), *Angophora leiocarpa* (Smooth-barked Apple), *Corymbia citriodora* (Spotted Gum) and *Corymbia intermedia* (Pink Bloodwood).

- RE12.9-10.2: *Corymbia citriodora subsp. variegata* open forest or woodland usually with *Eucalyptus crebra*. Other species such as *Eucalyptus tereticornis*, *E. moluccana*, *E. acmenoides* and *E. siderophloia* may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of *Lophostemon confertus* (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 10b)
- RE12.9-10.7: *Eucalyptus crebra* +/- *E. tereticornis*, *Corymbia tessellaris*, *Angophora leiocarpa*, *E. melanophloia* woodland. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 13c).
    - 12.9-10.7a: *Eucalyptus siderophloia*, *Corymbia intermedia* +/- *E. tereticornis* and *Lophostemon confertus* open forest. Occurs on Cainozoic and Mesozoic sediments in near coastal areas. Not a Wetland (BVG1M: 12a).
- RE12.3.11: *Eucalyptus tereticornis* +/- *E. siderophloia* and *Corymbia intermedia* open forest to woodland. *Corymbia tessellaris*, *Lophostemon suaveolens* and *Melaleuca quinquenervia* frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include *Angophora leiocarpa*, *E. exserta*, *E.*

grandis, *E. latisinensis*, *E. tindaliae*, *E. ariegate* and *Melaleuca sieberi*. *Corymbia trachyphloia* and/or *C. citriodora subsp. ariegate* may dominate on areas of Pleistocene alluvia. *Eucalyptus seeana* may be present south of Landsborough and *Livistona decora* may occur in scattered patches or low densities in the Glenbar SF and Wongi SF areas. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c)

- RE12.3.7: Narrow fringing woodland of *Eucalyptus tereticornis*, *Casuarina cunninghamiana subsp. cunninghamiana* +/- *Melaleuca viminalis*. Other species associated with this RE include *Melaleuca ariegate*, *M. trichostachya*, *M. linariifolia*. North of Brisbane *Waterhousea floribunda* commonly occurs and may at times dominate this RE. *Melaleuca fluviatilis* occurs in this RE in the north of the bioregion. *Lomandra hystrix* often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region. (BVG1M: 16a)
- RE12.9-10.19: *Eucalyptus fibrosa subsp. fibrosa* woodland +/- *Corymbia citriodora subsp. ariegate*, *E. acmenoides* or *E. portuensis*, *Angophora leiocarpa*, *E. major*. Understorey often sparse. Localised occurrences of *Eucalyptus sideroxylon*. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 12a).
    - 12.9-10.19a: *Corymbia henryi* and/or *Eucalyptus fibrosa subsp. fibrosa* open forest. Other commonly associated species include, *Corymbia citriodora subsp. ariegate*, *E. carnea*, *E. siderophloia*, *E. crebra* and *E. major*. Occurs in coastal areas on Cainozoic and Mesozoic sediments. Not a Wetland (BVG1M: 10b)
- RE12.9-10.12: Mixed woodland to open forest usually containing *Corymbia intermedia*, *Angophora leiocarpa* and at least a presence of *Eucalyptus seeana*. Other commonly associated species include *E. siderophloia*, *E. tereticornis*, *E. ariegate subsp. ariegate* and *C. citriodora subsp. ariegate*. *E. seeana* and *Lophostemon suaveolens* are often present as sub-canopy or understorey trees. Occasional *Melaleuca quinquenervia* on lower slopes. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 9g)

Area 1

Vegetation in area 1 consists of Eucalypt dominated communities reflective of RE12.9-10.2 on the west of the road reserve, with mostly cleared vegetation on the east, dominated by invasive species including *Megathyrsus maximus* (Guinea Grass), *Lantana camara* (Lantana), *Paspalum dilatatum* (Paspalum) and *Ageratum houstonianum* (Blue Billygoat Weed) with some natives scattered throughout including *Jacksonia scoparia* (Dogwood), *Lepidosperma laterale* (Variable Swordsedge) and *Ottochloa gracillima* (Graceful grass) (**Photo set 1**). Adjoining vegetation to the cleared track has evidence of regrowth and logging reducing the number of large hollow-bearing trees in this area.

Photo set 1: Vegetation within the mostly cleared area to the east of Area 1 (left) and vegetation associated with the waterway at the upper extent of Area 1.

Area 2

Highly modified vegetation is present through the northern extent of area 2, non-remnant vegetation remains to the west of the road which contains a cleared area with some scattered large mature trees, where disturbance by dirt bikes and 4WD is frequent (**Photo set 2**). Eucalypt dominated vegetation is present in the southern extent of area 2 with canopy species predominantly *Eucalyptus tereticornis* (Forest Red Gum), *Angophora leiocarpa* (Smooth-barked Apple), *Corymbia citriodora* (Spotted Gum), *Corymbia intermedia* (Pink Bloodwood) and *Eucalyptus propinqua* (Grey Gum) (**Photo set 3**). The understorey is dominated by regrowth *Acacia sp.* and *Alphitonia excelsa* (Soap Tree) and the ground layer is absent of vegetation throughout the cleared track with invasive species dominating either side of the road.


Photo set 2: Vegetation and road reserve through the northern extent of Area 2.


Photo set 3: Vegetation characteristics of the southern extent of Area 2 and condition of existing cleared track.

Area 3

This area consists of a lower tree layer of *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) with a canopy of *Eucalyptus tereticornis* (Forest Red Gum) and scattered *Angophora leiocarpa* (Smooth-barked Apple) (**Photo set 4**). Understorey shrubs throughout this area consist of *Acacia concurrens* (Black Wattle) and *Alphitonia excelsa* (Soap Tree). The waterway in Area 3 is without defined bed and bank, where there is some pooling water associated with the bund created by the road. There is no defined flow path upstream within the waterway. *Paspalum mandiocanum* (Broad-leaved Paspalum), *Chloris gayana* (Rhodes grass) and *Lantana camara* (Lantana) dominate the ground and shrub layer. Vegetation in this area is representative of mapped remnant RE12.3.11/12.3.7.


Photo set 4: Vegetation within and surrounding waterway associated with Area 3.

Area 4

The canopy is dominated by species including *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus tereticornis* (Forest Red Gum) with *Angophora leiocarpa* (Smooth-barked Apple) and *Corymbia citriodora* (Spotted Gum) also present with an understorey of regrowth *Acacia sp.* and *Alphitonia excelsa* (Soap Tree) (**Photo set 5**). Species present within this area are indicative of RE 12.9-10.7a.


Photo set 5: Vegetation and cleared track within Area 4.

Area 5

This area is dominated by canopy species including *Eucalyptus tereticornis* (Forest Red Gum), *Grevillea robusta* (Silky Oak), *Lophostemon suaveolens* (Swamp Box), *Casuarina cunninghamiana* (River She-Oak) and *Melaleuca quinquenervia* (Broad-leaved Paperbark) which are present throughout the waterway and adjoining vegetation (**Photo set 6**). The median canopy height is 18 – 20 m with species indicative of RE 12.3.11 and 12.3.7 present in this area. The understorey and ground layers contains native species including *Lomandra longifolia* (Long-leaved Matrush), *Acacia fimbriata* (Brisbane Wattle), *Melaleuca viminalis* (Weeping Bottlebrush) and *Ottochloa gracillima* (Graceful grass). Dense infestations of weeds including *Verbena bonariensis* (Purple-top Verbena), *Lantana camara* (Lantana), *Chloris gayana* (Rhodes grass) and *Ageratum houstonianum* (Blue billy-goat weed) are present within the shrub and ground layers which indicates poor habitat for Koala.

Photo set 6: Waterway and vegetation associated with Area 5.

Area 6

The understorey in this area is dominated by regrowth *Acacia sp.* and *Alphitonia excelsa* (Soap Tree) which demonstrates evidence of fire disturbance. Canopy species in this area are dominated by *Eucalyptus propinqua* (Grey Gum), *Angophora leiocarpa* (Smooth-barked Apple) and *Eucalyptus tereticornis* (Forest Red Gum) with *Corymbia citriodora* (Spotted Gum) which is indicative of RE 12.9-10.7 (**Photo set 7**). Limited native ground species are present throughout Area 6, which are mainly restricted to the road edge and some mature hollow bearing trees are present within the road reserve.

Photo set 7: Vegetation associated with Area 6 on and adjacent to the existing cleared track.

3.00 Field Survey Effort and Vegetation Communities

Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources

Legend

- Qld DCDB
- New Beith Road referral area
- Camera Trap Locations
- SAT Survey Locations
- SAT Meander
- Scat Meanders
- Spotlighting
- GPS Track Log
- Habitat Tree

Vegetation Communities

- Cleared Road Reserve [4.43 ha]
- 1. Non-remnant vegetation, cleared with scattered regrowth and mature hollow-bearing canopy trees [8.75 ha]
- 2. Highly disturbed mapped remnant (RE 12.9-10.2) vegetation with scattered mature hollow-bearing Eucalypts [8.52 ha]
- 3. Melaleuca and Lophostemon dominated remnant vegetation (RE 12.3.11/12.3.7) 1.38 ha]
- 4. Eucalypt dominated remnant vegetation (RE 12.9-10.7a) [2.22 ha]
- 5. Flagstone Creek remnant vegetation (RE 12.3.1 1/12.3.7) [0.68 ha]
- 6. Eucalypt dominated remnant vegetation with Acacia species (RE 12.9-10.2/12.9-10.7) [4.19 ha]

Issue	Date	Description	Drawn	Checked
B	27/02/2023	Preliminary	TF	AD

0 50 100 150 200 250 m

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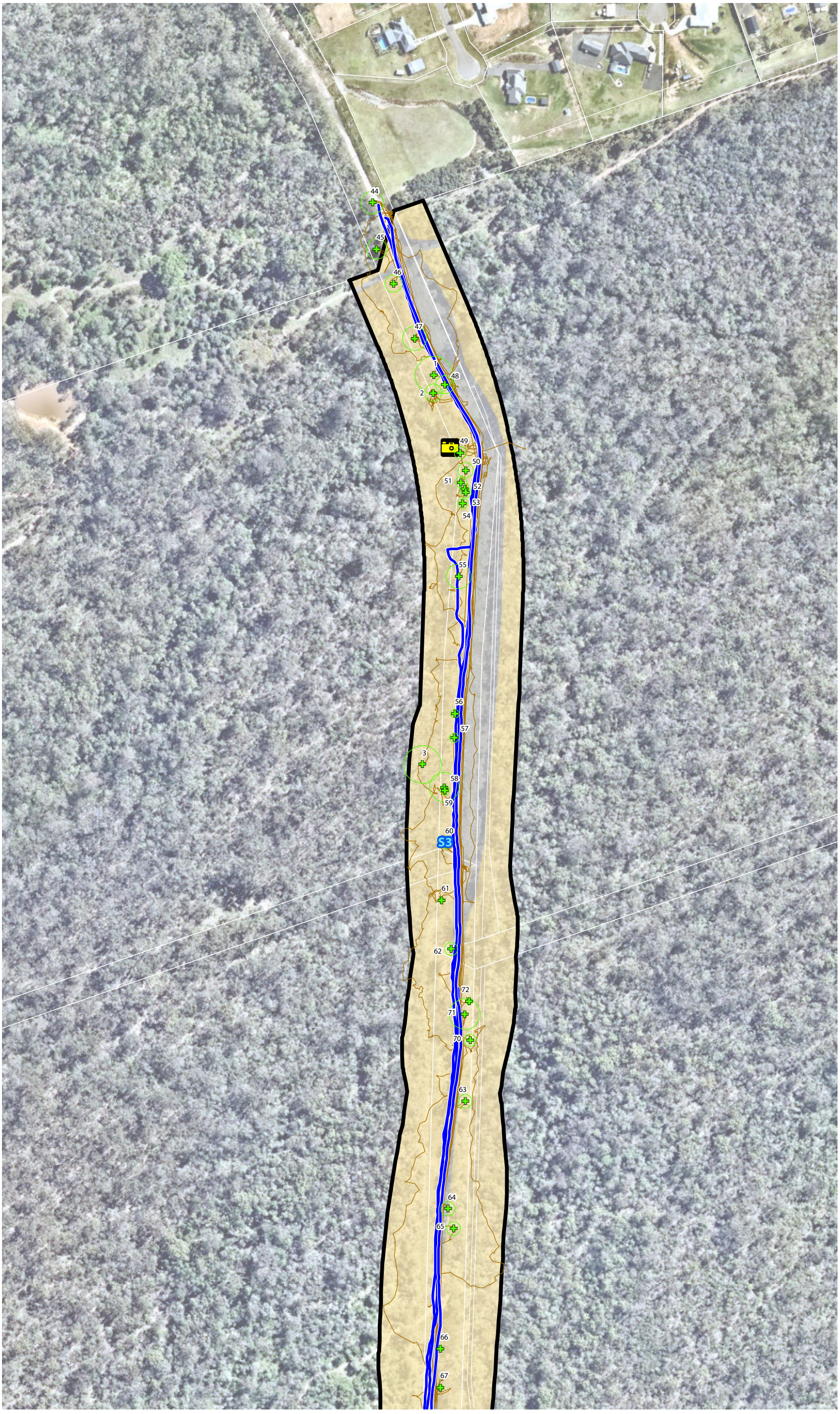
New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 03 NBR Field Survey A

3.01 Field Survey Effort and Vegetation Communities



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Layer Sources

Legend

- Qld DCDB
- New Beith Road referral area
- Camera Trap Locations
- SAT Survey Locations
- SAT Meander
- Scat Meanders
- Spotlighting
- GPS Track Log
- Habitat Tree (w/ TPZ)

Vegetation Communities

- Cleared Road Reserve [4.43 ha]
- 1. Non-remnant vegetation, cleared with scattered regrowth and mature hollow-bearing canopy trees [8.75 ha]
- 2. Highly disturbed mapped remnant (RE 12.9-10.2) vegetation with scattered mature hollow-bearing Eucalypts [8.52 ha]
- 3. Melaleuca and Lophostemon dominated remnant vegetation (RE 12.3.11/12.3.7) 1.38 ha]
- 4. Eucalypt dominated remnant vegetation (RE 12.9-10.7a) [2.22 ha]
- 5. Flagstone Creek remnant vegetation (RE 12.3.11/12.3.7) [0.68 ha]
- 6. Eucalypt dominated remnant vegetation with Acacia species (RE 12.9-10.2/12.9-10.7) [4.19 ha]

Issue	Date	Description	Drawn	Checked
B	27/02/2023	Preliminary	TF	AD

0 20 40 60 80 100 m

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New Beith Road

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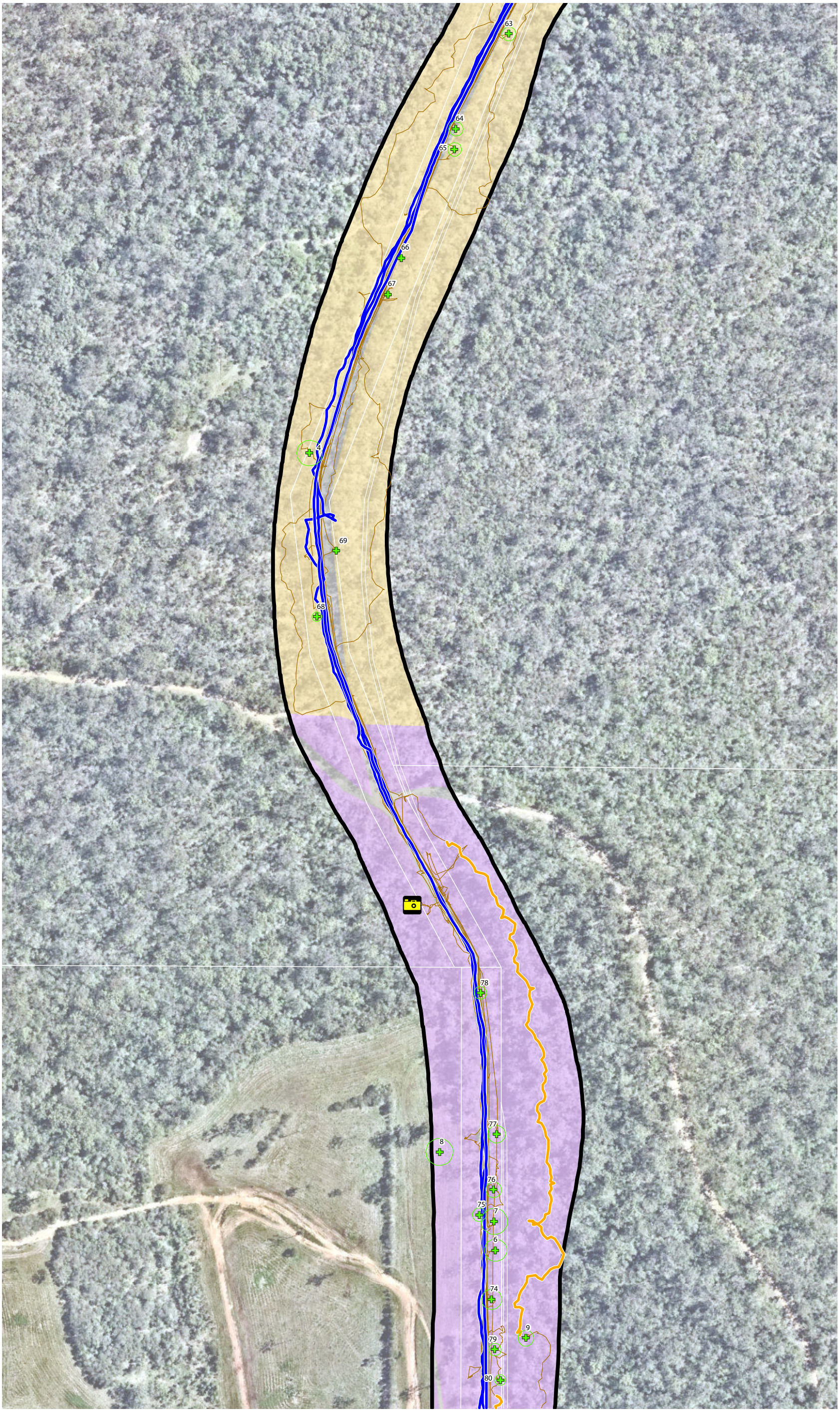
27/02/2023 | 8418 E 03_1 NBR Field Survey A

3.02 Field Survey Effort and Vegetation Communities



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Layer Sources

Legend

- Qld DCDB
- New Beith Road referral area
- Camera Trap Locations
- SAT Survey Locations
- SAT Meander
- Scat Meanders
- Spotlighting
- GPS Track Log
- Habitat Tree (w/ TPZ)

Vegetation Communities

- Cleared Road Reserve [4.43 ha]
- 1. Non-remnant vegetation, cleared with scattered regrowth and mature hollow-bearing canopy trees [8.75 ha]
- 2. Highly disturbed mapped remnant (RE 12.9-10.2) vegetation with scattered mature hollow-bearing Eucalypts [8.52 ha]
- 3. Melaleuca and Lophostemon dominated remnant vegetation (RE 12.3.11/12.3.7) 1.38 ha]
- 4. Eucalypt dominated remnant vegetation (RE 12.9-10.7a) [2.22 ha]
- 5. Flagstone Creek remnant vegetation (RE 12.3.11/12.3.7) [0.68 ha]
- 6. Eucalypt dominated remnant vegetation with Acacia species (RE 12.9-10.2/12.9-10.7) [4.19 ha]

Issue	Date	Description	Drawn	Checked
B	27/02/2023	Preliminary	TF	AD

0 20 40 60 80 100 m

Flagstone 94 (2014) Project Coordinates | 1:3,000 @ A3

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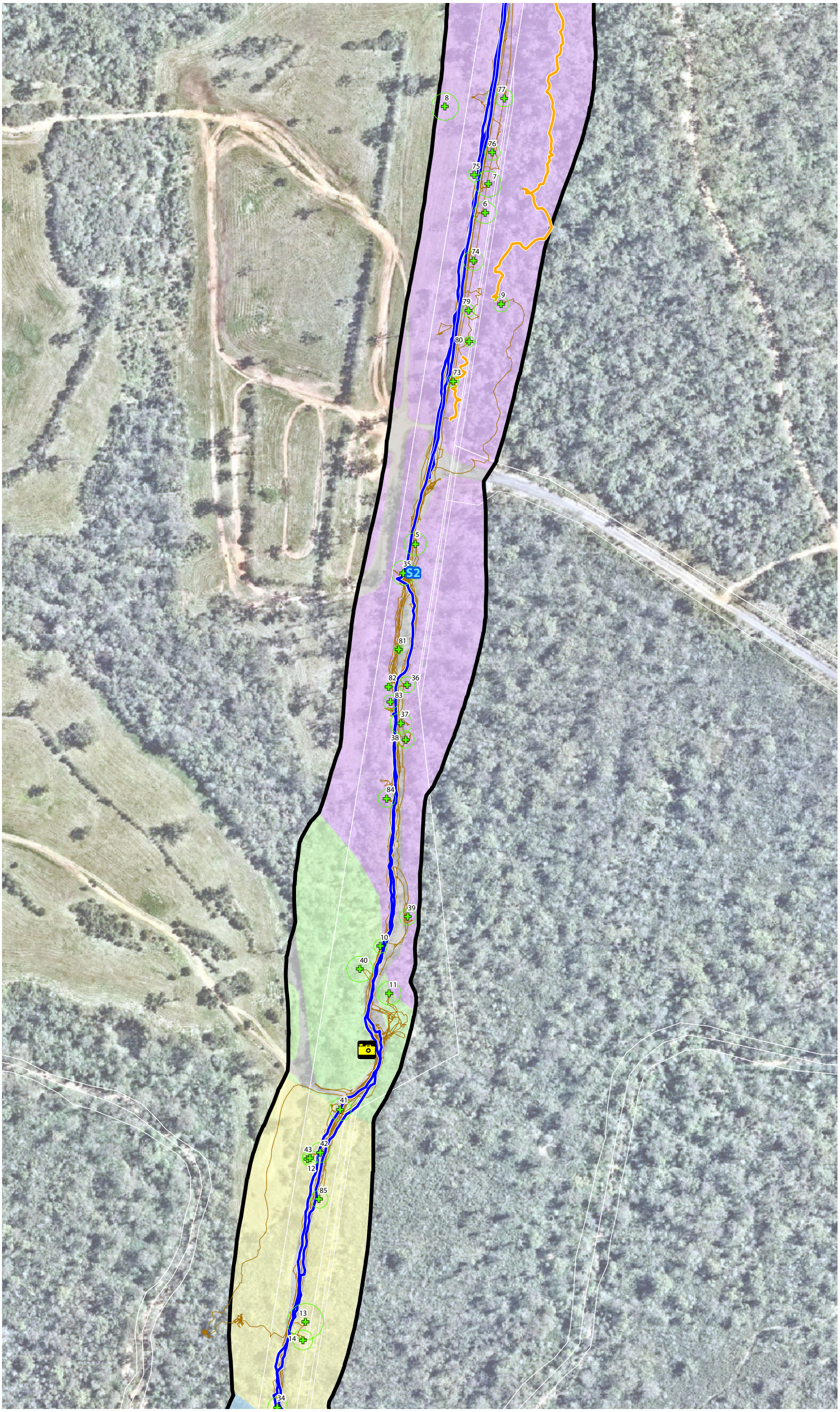
New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 03_1 NBR Field Survey A

3.03 Field Survey Effort and Vegetation Communities



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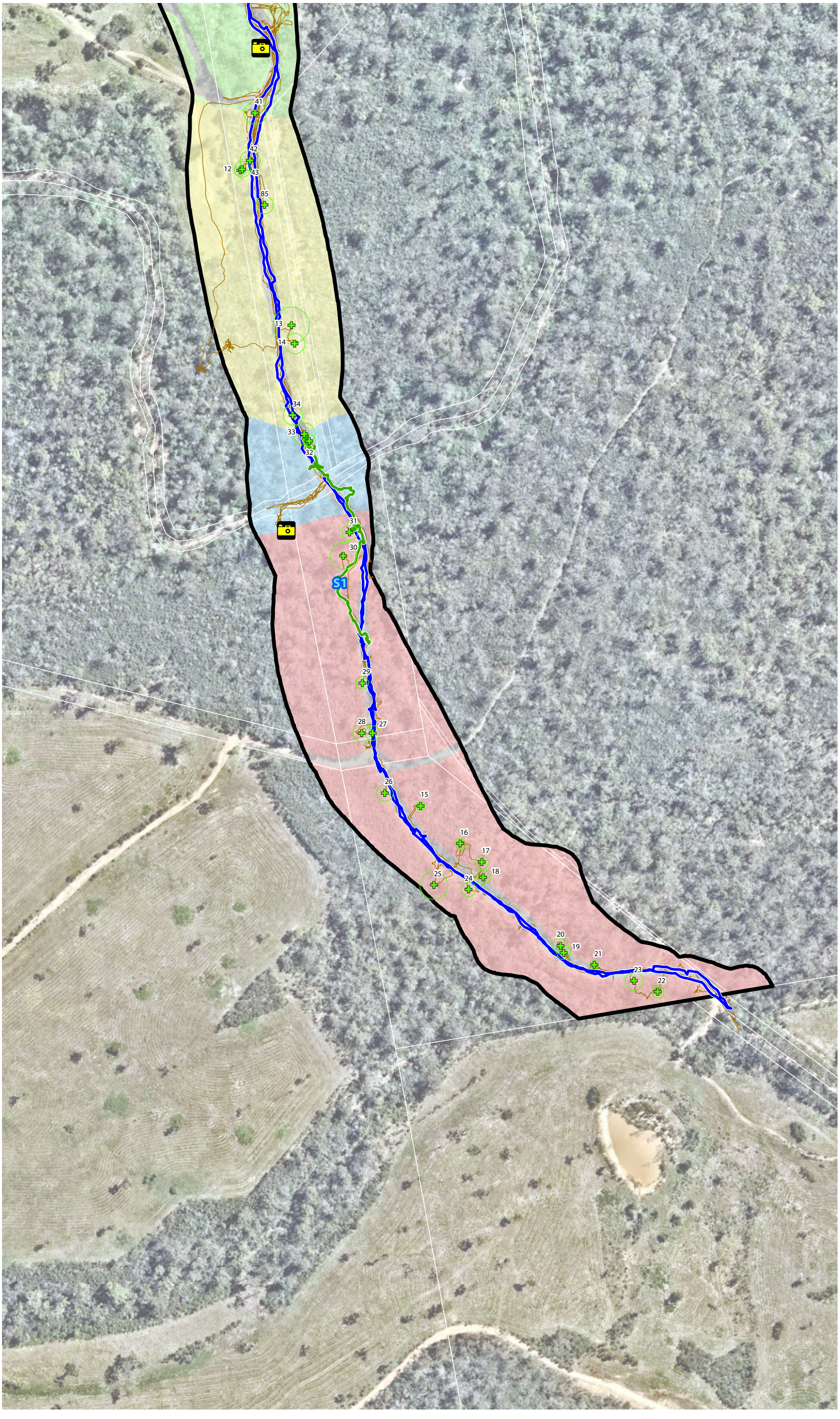
New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 03_1 NBR Field Survey A

3.04 Field Survey Effort and Vegetation Communities



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Layer Sources

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Legend

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0 20 40 60 80 100 m

Flagstone 94 (2014) Project Coordinates | 1:3,000 @ A3

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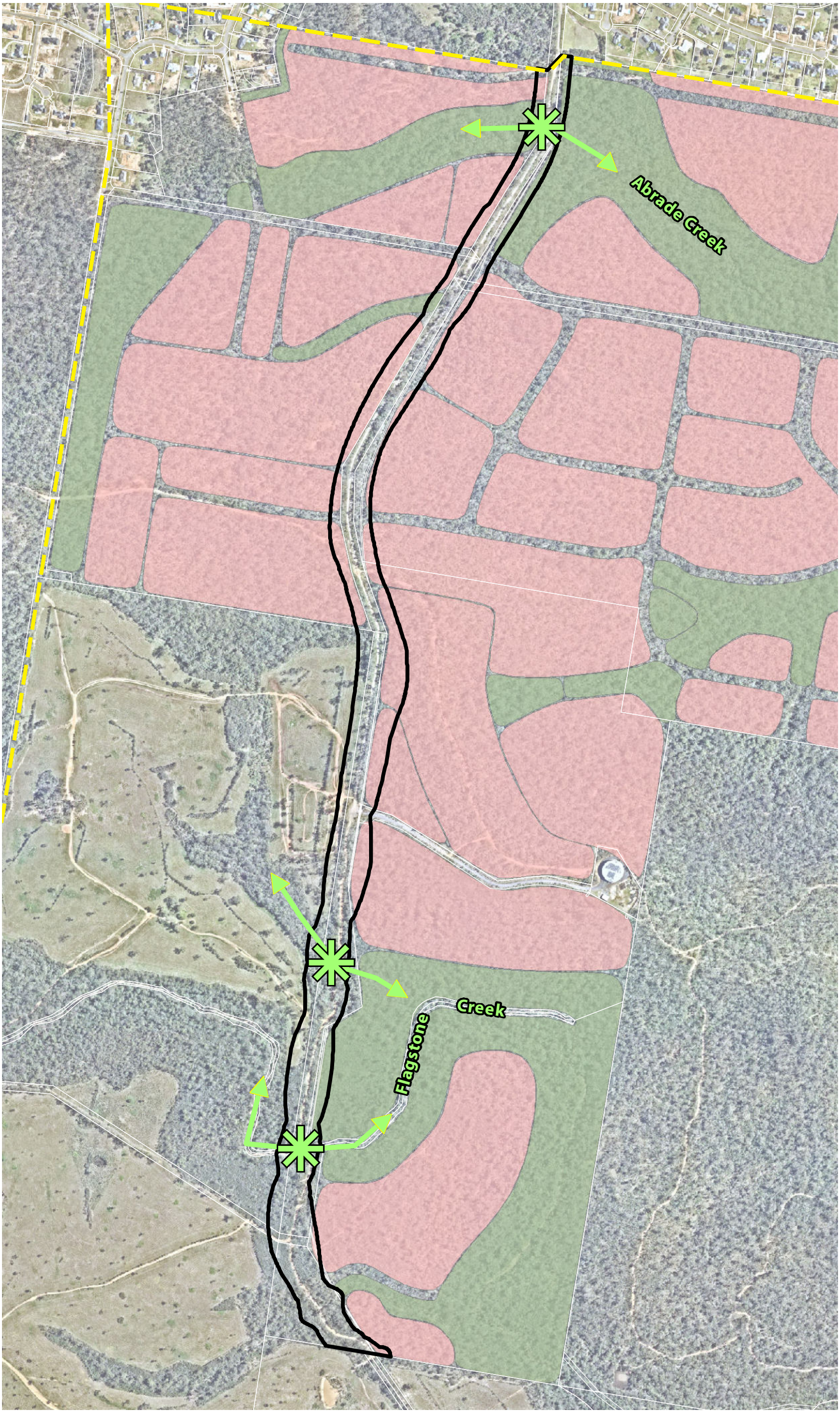
Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 03_1 NBR Field Survey A

4. New Beith Road Framentation Analysis



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Layer Sources

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- Qld DCDB
- New Beith Road referral area
- Greater Flagstone PDA Boundary
- Impact areas
- Retained open space corridors
- Fauna friendly passage solution as per DTMR Guidelines

Issue	Date	Description	Drawn	Checked
B	27/02/2023	Preliminary	TC	AD

0 50 100 150 200 250 m

Flagstone 94 (2014) Project Coordinates | 1:9,000 @ A3

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Peet Flagstone City Pty Ltd

New Beith Road

Address / RPD: New Beith, Qld

27/02/2023 | 8418 E 04 NBR Fragmentation A

4.2.4 *Connectivity*

The site is positioned within the Greater Flagstone PDA. The surrounding locality has undergone significant development, including residential development to the north and south-east, the Interstate rail line to the east and Flagstone Town Centre further south. At present the site is part of a larger block of vegetation that extends to the east, south and west. However, areas to the south within Flagstone PDA have been earmarked for future development which will isolate the site from any significant vegetation further south. Additionally, the patch of vegetation to the east is isolated by the Interstate Rail Line, beyond which there is further residential development (**Plan 1**). A patch of vegetation west of the road reserve has been cleared for agricultural uses and is regularly used for dirt bike riding and vehicle use (**Photo set 3**).

Most adjoining residential development has been determined a controlled action for the purposes of the EPBC Act (e.g. refer EPBC 2019/8412), except for areas where development is assumed to predate the listing of the Koala. Importantly, the services easement that runs parallel to the rail line (refer EPBC 2018/8344) was deemed not a controlled action, as was the Teviot Rd extension to the south (refer EPBC 2014/7319)).

4.2.5 *Flora Results*

A total of eighty-eight (88) flora species were recorded across the referral area during field surveys, as listed in **Appendix D.** Of the eighty-eight (88) flora species recorded, fifty-eight (58) are native and thirty (30) species are exotic/native weed species.

Refer to **Appendix D** for the complete flora list and native / exotic or native weed designation.

No flora species listed under the EPBC Act nor NCA were recorded in or adjoining the referral area.

4.2.6 *Spotlight Searches*

Spotlighting occurred on the 12th and 13th December 2022 between 1800 and 2030hrs. Spotlighting occurred across the entire site and effort focussed on areas identified as potential habitat for nocturnal species (e.g. more mature trees) and targeted searches for Koala, Greater Glider and Grey-headed Flying-fox.

4.2.7 *SAT Surveys*

Three (3) SAT surveys to assess Koala activity within the referral area were completed in accordance with Philips and Callaghan (2011) (**Plan 3**). All SAT surveys scored a 0 out of 30 (refer to **Appendix E** for full SAT survey results). No evidence of Koala in the form of direct sightings or scats and scratch marks was detected within the referral area during these targeted surveys nor via incidental searches during tree plot or habitat surveys.

4.2.8 *Fauna Results*

A total of forty (40) fauna species were recorded during field surveys, including twenty-three (23) birds, six (6) reptiles, two (2) amphibians, six (6) mammals and three (2) marsupials. No conservation significant fauna species or evidence of their activity were recorded during the field survey. Evidence of wild dog (*Canis lupus familiaris*) and feral pig (*Sus scrofa*) were captured on the motion-sensing cameras (**Photo set 3**).

A complete fauna species list is provided in **Appendix D.**

Photo set 1: Cleared area and dirt bike tracks adjacent to the site (top) and dog captured on motion sensor camera located on site (bottom).

4.2.9 Threatened Fauna Assessment

Database searches returned thirty-two (32) fauna species listened as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the referral area. The desktop assessment determined four (4) threatened fauna species listed under the EPBC Act and/or NCA as having moderate or higher potential to occur on or near the referral area and in addition, two (2) threatened fauna species with potential foraging habitat present onsite. A summary of targeted field assessments is found below.

Regent Honeyeater (*Anthochaera phrygia*)

Regent Honeyeaters occupy dry Box-Ironbark eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister more fertile sites, with an abundance of large trees and mistletoes.

Field surveys determined the site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) were recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. A record of the Regent Honeyeater is present on ALA from 2019 within bushland approximately 5 km south-west of the referral area. Vegetation onsite represents potential foraging habitat for this species.

No sighting of Regent Honeyeater, nor evidence of Regent Honeyeater, was recorded within the referral area.

South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*)

The Glossy Black-cockatoo prefers woodland areas dominated by she-oak *Allocasuarina littoralis* (Black She-oak), or open sclerophyll forests and woodlands with a stratum of *Allocasuarina* beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed *Allocasuarina, Casuarina*, cypress *Callitris* and brigalow *Acacia harpophylla* woodland assemblages.

Field surveys located scattered isolated black sheoak (*A. littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. Searches of these habitat areas did not identify feeding "orts" within *Allocasuarina littoralis* stands. ALA records show the species recorded in 2021 approximately 8 km west of the road reserve within intact bushland vegetation. There is only one (1) record of the species on BioMaps since 2013 within a 5 km radius of the site. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.

No sighting of Glossy Black-cockatoo, nor evidence of Glossy Black-cockatoo, was recorded within the referral area.

Swift Parrot (*Lathamus discolor*)

The Swift Parrot breeds in Tasmania during spring to early summer and migrates to the mainland during autumn and winter to forage. Large portions of the referral area are mapped as Category X (non-remnant) under the Queensland *Vegetation Management Act 1999* where high levels of disturbance occur throughout the road reserve.

Field surveys determined potential foraging habitat in eucalypt dominated areas through the Category B vegetation within the referral area although higher quality habitat is present within the broader landscape, particularly large intact bushland further to the west. There are no records of the species within 5 km of the site on ALA. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.

No sighting of Swift Parrot, nor evidence of Swift Parrot, was recorded within the referral area.

Greater Glider (*Petauroides volans*)

The Greater Glider is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. A variety of eucalypt species occur within and adjacent to the New Beith Road reserve, however some areas of Category X vegetation are highly disturbed and represent historical clearing with only scattered mature trees remaining.

Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Records of this species have been recorded within 15 km of the site, in Flinders Peak Conservation Park on BioMaps. No recent records of the Greater Glider are recorded within the referral area and none are recorded within 5 km of the site. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat, it is considered a moderate to low likelihood this species would occur onsite.

No sighting of Greater Glider, nor evidence of Greater Glider, was recorded within the referral area.

Koala (*Phascolarctos cinereus*)

The Koala occurs in a range of environments containing eucalypt forest or woodland. While the referral area does support potential habitat for the species, on-ground assessments delineated vegetation communities into areas that contained Koala food trees and those areas that are highly disturbed and cleared.

Nocturnal surveys (spotlighting) and SAT surveys were utilised to detect evidence of Koala activity across the referral area and to determine the likelihood of occurrence on-site. General scat surveys were also conducted while traversing the site. In addition, three (3) Spot Assessment Techniques (SAT's) were carried out across the referral which involves searching the base of the nearest 30 trees to a central point for scats. No evidence of Koala activity in the form of scats, scratch marks and direct observations were recorded within the referral area. The evidence suggests that the referral area is not currently utilised by Koalas and is considered relatively poor habitat for the species. The broader landscape consists of multiple threats to Koala as a result of main roads, commercial and transport developments and fragmented vegetation despite the current connection to the vegetation to the west and east of the site (**Plan 4**).

It is anticipated that if Koala were to utilise the referral area, they would be under threat from the wild dogs present on the site and be limited with the lack of vegetation in some parts to the west and south of the site. Records on ALA and BioMaps show Koala have been recorded within 5 km of the referral area within vegetation to the east of the site. However, none of these recorded sightings are within the referral area and it is likely the presence of wild dogs, disturbance from clearing and vehicle use has resulted in the lack of Koala activity on the site.

No sightings of Koala, nor evidence of Koala, was recorded within the referral area.

Grey-headed Flying-fox (*Pteropus poliocephalus*)

Pteropus poliocephalus (Grey-headed Flying-fox) requires foraging resources and roosting sites to persist. The species is known to use a wide variety of habitats including subtropical and temperate rainforests, tall sclerophyll forest and woodlands, heaths, swamps and also urban and agricultural areas where food trees have been cultivated.

The species is highly adaptive with its diverse native diet, which it can supplement with introduced species. It is known to forage within a variety of habitat areas as each resource does not produce food throughout the entire year. There are no observed roosts on-site, with the nearest roost located 5 km south-east of the site at Undulluh, Homestead Drive (464), with the latest survey in February of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals.

There is only one (1) record of the species on ALA since 2013 within a 5 km radius of the site. This record was north of the site in New Beith. Some flowering eucalypts were present during spotlighting activities although the Grey-headed Flying-fox was not recorded.

No Grey-headed Flying-fox individuals were recorded during field surveys.

4.2.10 Migratory Species Assessment

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area. Following the likelihood of occurrence assessment, no species were identified as having a moderate or greater likelihood of occurring on-site.

No migratory fauna species of conservation significance were recorded during the field survey.

A complete fauna species list is provided in **Appendix D.**

4.3. Risk of Impact

A potential of occurrence assessment was initially conducted prior to conducting field surveys to identify the MNES (threatened ecological communities and threatened and/or migratory species) of potential relevance to the referral area. The identified MNES were then the focus of the field survey program and effort.

After completing the field survey, a likelihood of occurrence (*i.e.,* a revised version of the potential of occurrence assessment) was undertaken based on field survey results and the confirmed vegetation communities and associated habitats contained with the referral area. The outcome of this two-staged likelihood of occurrence is presented in the following sections.

Those matters with a moderate or high likelihood of occurrence proceed to the impact assessment presented in **Section 5.**

Based upon the database searches and the findings of the desktop assessment, the only MNES identified as being of potential relevance to the project include threatened ecological communities, threatened flora and fauna species, and migratory fauna species.

4.3.1 EPBC Act Wetlands of International Importance

The Protected Matters Search Tool search area buffer includes the Moreton Bay Ramsar site. The referral site is located approximately 20 – 30 km upstream from the Ramsar site. Due to the distance from the Ramsar site, the proposed action is unlikely to have a significant impact on this EPBC Act Wetlands of International Importance.

Field surveys confirmed that impact to the wetland of international importance is unlikely as a result of the proposed action.

4.3.2 EPBC Act Threatened Ecological Communities

The likelihood of occurrence for each TEC within the referral area, as presented in **Appendix C**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs, to identify those TEC's with potential to occur in the referral area or recorded during field surveys.

The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following seven (7) threatened ecological communities (TEC), listed under the EPBC Act, as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and Southeast Queensland ecological community
- Coastal Swamp Sclerophyll Forest of New South Eales and Southeast Queensland
- Grey box-grey gum wet forest of subtropical eastern Australia
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and Southeast Queensland bioregions
- White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland

The results of the likelihood of occurrence assessment determined that one (1) of the above-mentioned TECs have a moderate likelihood to occur based on the presence of indicative Regional Ecosystems on site. This TEC is the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions* and is discussed further below. No other above-mentioned TECs were likely to occur due to the absence of indicative Regional Ecosystems and species or habitat values on site typically associated with these TECs.

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions

The structure of the ecological community, in its undisturbed state, varies from tall open forest to woodland, although partial clearing may have reduced the canopy to scattered trees in some areas. The tree canopy is dominated by eucalypts and/or other myrtaceous trees (specifically from the *Angophora*, *Corymbia*, *Lophostemon* and *Syncarpia* genera), often as a mixture of species. A mid-layer or sub-canopy of small trees may be present for example, *Melaleuca*, *Leptospermum* and related genera may form dense thickets beneath the main canopy, or in gaps between canopy trees. The ecological community generally has a more diverse and abundant groundcover than ecological communities on locally adjoining slopes. The ecological community typically forms 'mosaics' with other floodplain forest communities, lowland woodlands and treeless wetlands. The following Regional Ecosystems form part of or align with the TEC: 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3b, 12.3.3d, 12.3.4a, 12.3.7, 12.3.7c, 12.3.7d 12.3.10, 12.3.11, 12.3.11a, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15, 12.3.19.

Desktop analysis and field surveys confirm the Of Concern RE12.3.11 occurs onsite. This RE was found to be associated with a small creek crossing area within the New Beith Road reserve. The current road passes directly through the vegetation described as the RE 12.3.11 / 12.3.7. A very small portion of the road reserve intersects vegetation mapped as RE12.3.11 / 12.3.7 in association with Flagstone Creek and a northern tributary of Flagstone Creek. In this area vegetation is consistent with the mapped RE 12.3.11/ 12.3.7 where canopy vegetation is dominated by *Eucalyptus tereticornis* (Forest Red Gum) and scattered *Angophora leiocarpa* (Smooth-barked Apple), with an understorey of *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box). Substantial weed infestations dominate the ground layer including *Paspalum mandiocanum* (Broad-leaved Paspalum), *Chloris gayana* (Rhodes grass) and *Lantana camara* (Lantana) dominate the ground and shrub layer. Although the area is small and contains substantial weed encroachment, it is considered to represent some characteristics of this TEC.

In accordance with the *DCCEEW Approved Conservation Advice (2022),* to be protected as a Matter of National Environmental Significance (MNES) areas of the ecological community must meet both:

- the key diagnostic characteristics (Section 2.1)
- at least the minimum condition thresholds (Table 2).

Field survey confirmed the areas mapped as RE12.3.11 / 12.3.7 within the referral area meet the key diagnostic characteristics of the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* TEC outlined in *DCCEEW Approved Conservation Advice (2022)*. In addition, the patch sizes are considered to be small (> 0.5ha) and field surveys confirm the two areas of potential TEC fall into Class C1 (small patch, with good quality understorey and large native trees) on the basis that vegetation is "Good Quality":

- *Ground cover richness1 ≥ 6 native species per sample plot AND*
- *≥ 10 large native trees 2 per ha AND*
- *≥ 50% of its total perennial understorey vegetation cover comprises native species*

It is noteworthy that only areas already disturbed for the existing road reserve will be impacted under this proposal.

Field surveys confirmed the presence of RE12.3.11 associated with this TEC within the referral area.

4.3.3 Threatened Flora Species

Database searches returned twenty (20) flora species, listed as threatened under the EPBC Act and/or NCA as having been previously recorded or potential to occur within 5 km of the referral area, as presented in **Appendices A & B**.

The results of the likelihood of occurrence assessment determined that none of the listed as threatened under the EPBC Act and/or NCA were likely to occur due to the high levels of disturbance on the referral site and limited size of the referral area.

Field surveys confirmed that no EPBC or NCA listed flora species were present within the referral area.

4.3.4 Threatened Fauna Species

Database searches returned thirty-two (32) fauna species, listed as threatened under the EPBC Act and / or NCA, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendices A & B**.

Based on the presence of species records within the locality and field surveys within the referral area, a revised likelihood of occurrence assessment was conducted to determine those threatened fauna species with potential to occur within the referral area (**Appendix C**). The assessment identified that three (3) fauna species, South-eastern Glossy Black-cockatoo, Greater Glider and Koala have a 'moderate-low' or 'moderate' likelihood of occurrence following field surveys. In addition, three (3) species have been included in the assessment due to potential foraging habitat being available for Regent Honeyeater, Swift Parrot and Grey-headed Flying-fox. All other threatened fauna species have a 'low' or 'unlikely' likelihood of occurrence (refer **Table 5**).

No fauna species listed under the EPBC Act and NCA, or evidence of their activity was recorded during field surveys.

Table 5: Field Assessment Confirmed Likelihood of Occurrence – Threatened Fauna

Scientific Name (common name)	EPBC	NCA	Desktop (Preliminary) Likelihood of Occurrence	Field Assessment Confirmed (Revised) Likelihood of Occurrence
Anthochaera phrygia (Regent Honeyeater)	Critically Endangered	Endangered	**Low** The referral area within the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7 and composite of concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Potential foraging habitat may be present within Eucalypt dominated vegetation onsite.	**Low (potential foraging habitat)** Regent Honeyeaters occupy dry Box-Ironbark eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister more fertile sites, with an abundance of large trees and mistletoes. Field surveys determined the site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) were recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. A record of the Regent Honeyeater is present on ALA from 2019 within bushland approximately 5 km south-west of the referral area. Vegetation onsite represents potential foraging habitat for this species.
Calyptorhynchus lathami lathami (South-eastern Glossy Black-cockatoo)	Vulnerable	Vulnerable	**Moderate** The referral area within the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7 and composite of concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Potential feeding trees including *Allocasuarina* and *Casuarina* species present on site.	**Moderate – Low** Field surveys located scattered isolated black sheoak (*Allocasuarina littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. In addition, vegetation within the Category X area at the northern extent of the road reserve contains an understorey of *A. littoralis* on the western side. Weed disturbance is high throughout the *A. littoralis* stands, with *Lantana camara* (Lantana), *Ageratum houstonianum* (Blue Billy Goat), and *Paspalum dilatatum* (Paspalum) dominating the ground and shrub layers. Searches of these habitat areas did not identify any feeding "orts" within *Allocasuarina littoralis* stands characteristic of Glossy Black-cockatoo. Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. The

			Records of the species 8 km west of the road reserve were recorded in 2021 on ALA and there is only one (1) record of the species on BioMaps since 2013 within a 5 km radius of the site.	presence of potential habitat of only poor quality and high levels of vehicle disturbance on the site suggests a 'moderate to low' likelihood of occurrence on-site.
Lathamus discolor (Swift Parrot)	Critically Endangered	Endangered	**Low** The referral area within the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7 and composite of concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Potential foraging habitat may be present within Eucalypt dominated vegetation onsite. There are no records of the species within 5 km of the site on ALA.	**Low (potential foraging habitat)** The Swift Parrot breeds in Tasmania during spring to early summer and migrates to the mainland during autumn and winter to forage. Large portions of the referral area are mapped as Category X (non-remnant) under the Queensland *Vegetation Management Act 1999* where high levels of disturbance occur throughout the road reserve. Field surveys determined potential foraging habitat in eucalypt dominated areas through the Category B vegetation within the referral area although higher quality habitat is present within the broader landscape, particularly large intact bushland further to the west. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.
Petauroides volans (Greater Glider)	Endangered	Vulnerable	**Moderate** The referral area within the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7 and composite of concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. The areas of Category X vegetation are highly disturbed and represent historical clearing with only scattered mature trees remaining.	**Moderate – Low** Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat it is considered a moderate likelihood this species would occur onsite. Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. However, throughout the road reserve, large mature hollow-bearing trees remain which provide suitable habitat for the Greater Glider. Connectivity to vegetation is limited with residential areas to the north and cleared modified areas in the south and southwest. Vegetation

			Records of this species have been recorded within 15 km of the site, in Flinders Peak Conservation Park on BioMaps and recorded within 12 km north-east of the site in 2020 on ALA.	associated with Flagstone Creek remains a form of connectivity from vegetation in the east to larger intact bushland in the west (**Plan 4**). The presence of potential habitat but high disturbance suggests a moderate-low likelihood of occurrence on-site.
Phascolarctos cinereus (Koala)	Endangered	Endangered	**Moderate** The referral area within the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7 and composite of concern RE 12.3.11/12.3.7. A small portion of Category C (high-value regrowth) vegetation (0.54 ha) is mapped through the centre of the road reserve, described as composite Endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. Koala food trees are indicator species for these regional ecosystems and are present on the referral site. As the species is known to occur within the broader landscape as well as the presence of potential habitat within the referral area, the likelihood of occurrence has been assigned 'moderate'.	**Moderate – Low** Field surveys confirmed Koala habitat is present within the referral area in the form of *Corymbia citriodora* and *Angophora leiocarpa* dominated woodland fringing the southern extent of the road reserve. Field surveys of the Eucalypt dominated areas found the northern and eastern patches to contain retained mature canopy trees with a fairly intact understorey. Vegetation in the south and southwest has been cleared, with very few mature canopy trees remaining and a modified ground and understorey layer of maintained grass. This area experiences high levels of disturbance from vehicle and motorbike uses. Vegetation in the south contains scattered mature canopy trees with a dense understorey of *Acacia sp.* reflecting historic fire disturbance. Connectivity to vegetation is limited with residential areas to the north and cleared modified areas in the south and southwest. Vegetation associated with Flagstone Creek remains a form of connectivity of Koala habitat from vegetation in the east to larger intact bushland in the west (**Plan 4**). No evidence of Koala in the form of scats, scratch marks or direct observations was recorded during field surveys, suggesting Koalas are not utilising the site. The presence of potential habitat of only poor quality and high levels of vehicle disturbance on the site suggests a 'moderate to low' likelihood of occurrence on-site.
Pteropus poliocephalus (Grey-headed Flying-fox)	Vulnerable	-	**Moderate** Large areas of the road reserve are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B	**Low (potential foraging habitat)** Field surveys confirmed the presence of potential foraging habitat for the GHFF on-site in the form of fragmented eucalypt woodland within

(remnant) under the *Vegetation Management Act 1999* (Qld). The site and adjoining vegetation is mapped as containing vegetation of least concern regional ecosystem 12.9-10.2, of concern RE 12.9-10.7, composite of concern RE 12.3.11/12.3.7 and composite endangered RE 12.9-10.19a/12.9-10.12/12.9-10.7a. The canopy species within these regional ecosystems indicate potential foraging habitat may be present within the referral area.

There are no observed roosts on-site, with the nearest roost located 5 km south-east of the site at Undulluh, Homestead Drive (464), with the latest survey in February of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals. There is only one (1) record of the species on ALA since 2013 within a 5 km radius of the site. This record was north of the site in New Beith.

As the species is known to forage in a variety of habitats, including open woodland areas present on-site, a desktop assessment of the likelihood of occurrence has been assigned 'moderate.'

the north and south of the site, which contains *Eucalyptus tereticornis* (Forest Red Gum), *Corymbia citriodora* (Spotted Gum) and *Eucalyptus propinqua (*Small-fruited Grey Gum). These trees are mature and may present foraging habitat when flowering. Some flowering eucalypts were present during spotlighting activities although the Grey-headed Flying-fox was not recorded.

Due to the lack of recorded sightings in the area and availability of higher quality habitat for this highly mobile species adjacent the site, there is low but potential likelihood that the species may opportunistically forage on-site.

The complete likelihood of occurrence is provided in **Appendix C.**

5. Impact Assessment

5.1. Potential Project Related Impacts

The proposed development involves the upgrade of the existing New Beith Road reserve. The referral area includes the works extent at 17.12 ha and 3.2 km, with a referral area inclusive of a 20 m buffer area comprising a 30.16 ha area. The road upgrade will involve the clearing of Category X (non-remnant) and Category B (remnant) vegetation under the *Vegetation Management Act 1999* (VMA). On ground surveys have assessed the vegetation as representing 6.48 ha of Category X vegetation consisting of scattered Eucalypts and cleared areas; 10.11 ha of Category B vegetation consisting of disturbed areas, scattered mature eucalypts, *Acacia sp.* regrowth and waterway areas; and 0.54 ha of Category C regrowth vegetation (**Figure 4**).

5.1.1 Impact Avoidance and Minimisation

The entire referral area is 30.16 ha comprising the works extent at 17.12 ha and a 20 m buffer field survey area and it is proposed that the entire works extent will be utilised for the development of New Beith Road. The project is predicted to impact some eucalypt dominated vegetation and some vegetation that contains little to no Koala food trees. As stated above, the existing disturbance and future earmarked development surrounding the road reserve is likely to largely isolate the site for potential MNES. Corridors for safe fauna movement will be retained and improved with fauna furniture and crossing infrastructure through the three (3) waterway crossings within the road reserve. This will allow retained connectivity values through Abrade Creek and Flagstone Creek. The development will follow all best-practice fauna protection processes during construction to minimise potential impacts to Koala as discussed below.

5.1.2 Potential Direct Impacts

Vegetation Clearing

The project is predicted to directly impact 17.12 ha of the referral area. A breakdown of vegetation to be impacted is provided in **Table 6**.

Habitat Loss

The Project is predicted to impact non-remnant vegetation, existing cleared areas (approximately 4.43 ha), disturbed eucalypt dominated vegetation, areas of *Acacia sp.* regrowth, vegetation associated with three waterway areas and vegetation that contains little to no Koala food trees.

Table 6: Potential direct impacts to field verified vegetation communities

Vegetation communities	Extent within referral area (ha)	Impact (ha)	Retained (ha)
Existing cleared track	4.43 ha	3.55 ha	
Non-remnant cleared areas with scattered regrowth and hollow-bearing trees	8.75 ha	4.07 ha	0
Highly disturbed mapped remnant (RE12.9-10.2) vegetation with scattered mature Eucalypts	8.52 ha	4.84 ha	0
Waterway with associated remnant (RE12.3.11/12.3.7) Melaleuca and Lophostemon dominated vegetation	1.38 ha	0.89 ha	0

Eucalypt dominated remnant (RE12.9-10.7a) vegetation	2.22 ha	1.21 ha	0
Flagstone Creek with associated remnant (RE12.3.11/12.3.7) vegetation	0.68 ha	0.34 ha	0
Remnant (RE12.9-10.2/12.9-10.7) Eucalypt dominant vegetation with *Acacia sp*. understorey	4.19 ha	2.22 ha	0
Total	**30.17 ha**	**17.12 ha**	**0**

The MNES identified as having a moderate and higher likelihood of occurrence based on a desktop and field assessments include Koala, Greater Glider and Glossy-black Cockatoo. The TEC *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions* was assessed to have a moderate likelihood of occurrence onsite. Subsequently, the Koala, Greater Glider, Glossy-black Cockatoo and the above mentioned TEC have been further assessed in terms of the risk of potential project related impacts upon the matter, to determine the need or otherwise for EPBC Act significant impact assessments to be completed, as presented in **Table 7**. In addition, due to the presence of potential foraging habitat located onsite, the Regent Honeyeater, Swift Parrot and Grey-headed Flying-fox have also been included in this assessment.

The risk of impact assessment (refer to **Table 7**) is qualitative and based upon the potential extent of habitat loss resulting from the construction phase of the project and to a lesser degree the operational phase of the project. It considered, but was not limited to the following:

- The value of the impacted habitat to each respective matter;
- The amount of habitat to be directly impacted (lost) against that to be retained;
- Potential indirect impacts (e.g. dust, noise and soil erosion);
- Potential fragmentation of a population into two or more populations;
- Increased fragmentation of wildlife corridors in the Referral area;
- Risk of operational impacts (e.g. noise); and
- Each species ability (e.g. fauna) or inability (e.g. flora) to move away from areas of direct impact into retained habitat.

Table 7: Fauna with a moderate or greater likelihood of occurring in the referral area post field surveys

Scientific Name	Common Name	EPBC Act Status	Likelihood of Occurrence	Risk of Impact
Threatened fauna species				
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	**Low (potential foraging habitat)** Regent Honeyeaters occupy dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister more fertile sites, with an abundance of large trees and mistletoes. Field surveys determined the site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) were recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. A record of the Regent Honeyeater is present on ALA from 2019 within bushland approximately 5 km south-west of the referral area. Vegetation onsite represents potential foraging habitat for this species.	Potential
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	Vulnerable	**Moderate – Low** Field surveys located scattered isolated black sheoak (*Allocasuarina littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. In addition, vegetation within the Category X area at the northern extent of the road reserve contains an understorey of *A. littoralis* on the western side. Weed disturbance is high throughout the *A. littoralis* stands, with *Lantana camara* (Lantana), *Ageratum houstonianum* (Blue Billy Goat), and *Paspalum dilatatum* (Paspalum) dominating the ground and shrub layers. Searches of these habitat areas did not identify any feeding "orts" within *Allocasuarina littoralis* stands characteristic of Glossy Black-cockatoo. Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. The presence of potential habitat of only poor quality and high levels of vehicle disturbance on the site suggests a 'moderate to low' likelihood of occurrence on-site. Regardless, the removal of habitat and feeding trees within the referral area identifies a potential risk of impact.	Yes
Lathamus discolor	Swift Parrot	Critically Endangered	**Low (potential foraging habitat)** The Swift Parrot breeds in Tasmania during spring to early summer and migrates to the mainland during autumn and winter to forage. Large portions of the referral area are mapped as Category X (non-remnant) under the Queensland *Vegetation Management Act 1999* where high levels of disturbance occur throughout the road reserve. Field surveys determined potential foraging habitat in Eucalypt dominated areas through the Category B vegetation within the referral area although higher quality habitat is present within the broader landscape, particularly large intact	Potential

			bushland further to the west. Occurrence is considered low and would likely be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.	
Petauroides volans	Greater Glider	Endangered	**Moderate – Low** Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat it is considered a moderate likelihood this species would occur onsite. Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. However, throughout the road reserve, large mature hollow-bearing trees remain which provide suitable habitat for the Greater Glider. Connectivity to vegetation is limited with residential areas to the north and cleared modified areas in the south and southwest. Vegetation associated with Flagstone Creek remains a form of connectivity from vegetation in the east to larger intact bushland in the west (**Plan 4**). The presence of potential habitat suggests a moderate likelihood of occurrence on-site. Regardless, the removal of large hollow-bearing habitat trees within the referral area identifies a potential risk of impact.	Yes
Phascolarctos cinereus	Koala	Endangered	**Moderate – Low** Field surveys confirmed Koala habitat is present within the referral area in the form of Corymbia citriodora and Angophora leiocarpa dominated woodland fringing the southern extent of the road reserve. Field surveys of the Eucalypt dominated areas found the northern and eastern patches to contain retained mature canopy trees with a fairly intact understorey. Vegetation in the south and southwest has been cleared, with very few mature canopy trees remaining and a modified ground and understorey layer of maintained grass. This area experiences high levels of disturbance from vehicle and motorbike uses. Vegetation in the south contains scattered mature canopy trees with a dense understorey of Acacia sp. reflecting historic fire disturbance. No evidence of Koala in the form of scats, scratch marks or direct observations was recorded during field surveys, suggesting Koalas are not utilising the site. The presence of potential habitat of only poor quality and high levels of vehicle disturbance on the site suggests a 'moderate to low' likelihood of occurrence on-site. Regardless, the removal of Koala habitat trees within the referral area identifies a potential risk of impact.	Yes

Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	**Low (potential foraging habitat)** Field surveys confirmed the presence of potential foraging habitat for the GHFF on-site in the form of fragmented eucalypt woodland within the north and south of the site, which contains *Eucalyptus tereticornis* (Forest Red Gum), *Corymbia citriodora* (Spotted Gum) and *Eucalyptus propinqua (*Small-fruited Grey Gum). These trees are mature and may present foraging habitat when flowering. Some flowering eucalypts were present during spotlighting activities although the Grey-headed Flying-fox was not recorded. Due to the lack of recorded sightings in the area and availability of higher quality habitat for this highly mobile species adjacent the site, there is a low but potential likelihood that the species may opportunistically forage on-site.	Potential

5.1.3 Potential Indirect Impacts

Indirect impacts occur when project related activities affect vegetation or habitats in a manner other than a direct loss or clearing. Examples of indirect impacts include; promotion of soil erosion, sedimentation of waterways, dust inhibiting plant pollination, provision of suitable seed bed for invasive plants, or increased noise activity within of directly adjacent to sensitive habitat areas.

The potential indirect impacts that may result from construction activities and/or the operational phase of the project have been identified below.

Weeds

Increased vehicle movement during the construction phase has the potential to increase the spread of weeds in the area, particularly during the vegetation clearing phase, however, the site is already highly disturbed by weed invasion, most notably exotic grasses and *Lantana camara* (Lantana). With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the potential introduction/spread of weeds.

Vehicle Movement

During construction, a number of vehicles will be required on the referral area. Direct impacts from vehicle movements on threatened species and vegetation communities include:

- damage or destruction of vegetation or fauna habitat by vehicles traversing these areas; and
- fauna strike.

Indirect impacts include:

- interference of fauna through visual and noise impacts. This in turn can affect feeding, roosting, breeding or nesting behaviour;
- introducing and/or spreading weeds or feral animals carried on or in vehicles, resulting in deterioration or loss of vegetation and important fauna habitat; and
- damage or destruction of vegetation and fauna habitat through smothering by dust generated by vehicles traversing the project area.

With implementation of standard mitigation measures, such as exclusion fencing and dedicated fauna passage, the project is likely to result in a temporary and minor impact to ecological values due to vehicular movements. Ecological field survey confirmed only common and highly mobile fauna are present on the site.

Earthworks

Construction activities have the potential to generate dust emissions. Dust emissions during construction will be temporary. The main sources of dust will be generated via:

- wheel-generated dust from the haul roads created for the construction phase;
- dust lift-off from exposed surfaces (e.g. construction roads and pads);
- earthworks, including construction of the embankments, and moving, dumping and shaping material; and
- vegetation and soil clearing of the land.

Excessive deposition of dust on leaves of plants can suppress their growth and photosynthesis, resulting in reduced habitat quality for fauna. High levels of airborne dust can irritate the respiratory systems of fauna and potentially result in ingestion of dust-coated seeds and other foods. Excessive deposition of dust on open water bodies may also degrade water quality and overall habitat quality for fauna. Notably the referral area exists within a relatively urbanised

environment with surrounding areas utilised for commercial purposes and residential development. With the implementation of standard mitigation measures, the project is likely to result in a temporary and minor impact to ecological values in surrounding areas due to the generation of dust.

Light Emissions During Construction

Artificial light can affect both nocturnal and diurnal animals by disrupting behavioural patterns, with quality of light (e.g. wavelength, colour), intensity and duration potentially evoking different faunal responses. Impacts from increased light levels include disorientation from, or attraction toward, artificial sources of light; mortality from collisions with structures, and effects on light-sensitive cycles of species (e.g. breeding and migration for fauna and flowering in plants). An artificial increase in lighting can also affect abundance of predators.

Presence and intensity of artificial light in the project area will temporarily increase during the construction phase; however, night works will not be common. Lighting will be directed to construction areas within the project site. Some light spillage will be inevitable and is likely to be contained. Potential impacts associated with light emissions will be temporary and are unlikely to be significant.

Noise and Vibration

Noise levels greater than existing ambient noise levels are expected during the construction within the project area. Sources of noise are likely to consist of short, intense pulses from mobile plant equipment, and more prolonged noise, with consistent vibration, pitch and volume from generators, excavators and pumps, in addition from noise from vehicles.

Both steady continuous and single noise events have the potential to lead to ecological impacts. Construction noise is expected to elicit some avoidance response from fauna using the surrounding vegetation though, with consideration of the extent of habitat available in and adjoining the referral area and species mobility, this is likely to be a temporary and negligible to minor impact.

Waste Disposal

Inappropriate disposal of non-hazardous wastes can attract vermin and other wildlife to site. This may exacerbate potential impacts (e.g. road mortality). Litter may also enter surrounding environments. With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the generation and handling of waste.

Hazardous and Dangerous Goods

Spills and leaks from transfers (e.g. fuel and/or chemicals) and inadequate storage of dangerous goods and hazardous wastes could result in point-source contamination of surrounding land. Direct adverse impacts could include toxic impacts on vegetation (resulting in degradation or loss of vegetation and habitats), direct toxic impacts on fauna (from contact, inhalation or ingestion) or indirect impacts on threatened and migratory species from habitat loss. Direct adverse impacts on surface and groundwater quality are also possible.

With the application of standard mitigation and management measures, impacts from liquid and solid waste disposal will be avoided or localised and small in scale. Further to this, the likelihood of significant spillages is considered extremely low. Therefore, the project is likely to result in a negligible impact to ecological values due to potential spills and leaks.

Increased Human Presence

Increased human activity during construction has the potential to disturb fauna within adjacent habitat areas. Resulting impacts to fauna include heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency or deter wildlife from using particular areas. Impacts essentially represent a reduction in habitat availability due

to edge effects. The project is likely to result in a temporary and minor impact to ecological values due to increased human presence on site during the construction and operational period. Much of the habitat surrounding the site will be cleared for residential development. Therefore, any impact that the proposed action has will be minor.

5.2. Potential Impacts to Matters of National Environmental Significance

As detailed in the previous sections, field surveys confirmed that, with the exception of Regent Honeyeater, Glossy-black Cockatoo, Swift Parrot, Greater Glider, Koala and Grey-headed Flying-fox the following are unlikely to occur or have a low likelihood of occurrence on the referral area:

- EPBC Act listed wetland of international importance
- EPBC Act listed TECs; aside from *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions* TEC which has potential to occur onsite.
- EPBC Act and NC Act listed flora species;
- EPBC Act and NC Act listed fauna species;
- EPBC Act Migratory fauna species.

In reference to **Table** 7: Fauna with a moderate or greater likelihood of occurring in the referral area post field surveys**7**, the threatened fauna species with a moderate or higher likelihood of occurring within the referral area post field survey are Glossy-black Cockatoo, Greater Glider and Koala and its supported habitat may be at risk of potential project related impacts and a significant impact assessment is considered necessary. In addition, a significant impact assessment is considered necessary for the SEFFW Threatened Ecological Community. Species with potential foraging habitat onsite include the Regent Honeyeater, Swift Parrot and Grey-headed Flying-fox which have also been included in the significant impact assessment.

6. Avoidance, Mitigation and Management Measures

6.1. Construction Phase

General mitigation measures to be implemented during the construction phase of the Project are outlined below. It is understood that the impact area will be securely fenced for security purposes and to mitigate potential threats to fauna within the retained rehabilitation area at operation.

6.1.1 Vegetation Clearing and Management Plan

A Vegetation Clearing and Management Plan (VC&MP) should form part of the broader management document submitted as part of the operational works application for the development site. The VC&MP should cover clearing of all vegetation listed in this report and include details on:

- Clearly show trees to be removed
- All civil works likely to impact on existing vegetation
- Temporary and permanent exclusion and protection fencing
- Roles and responsibilities for site contractors, the developer and the consultant group
- Stockpiling and site access locations
- A clearing sequence plan showing the commencement of clearing and direction of removal (this should be in conjunction with the Fauna Management Plan to allow for the appropriate flushing of fauna towards safe havens and/or the application of an appropriate relocation program)
- Links to weed management and revegetation proposals
- The stock piling and reuse of cleared vegetation

6.1.2 Fauna Management Plan

A Fauna Management Plan (FMP) should be prepared for potential impacts of the construction phase covering the loss of vegetated areas, isolated trees and likely barriers and impediments to local dispersal.

The FMP should link closely with the VC&MP and include details on:

- Species surveyed as using the site with a focus on those most likely impacted by development works
- A list of relevant State and Commonwealth legislation constraints and controls for the above listed fauna
- A plan showing existing habitat opportunities and locations
- Details of the threats to existing fauna species
- Clearing sequence plan from the VC&MP
- Management and mitigation measures i.e. temporary use of fauna exclusion fencing
- Fauna spotter role, contacts and certification
- Specific fauna management procedures for potential or known habitat trees

6.1.3 Fauna Spotter Catcher

A registered and suitability qualified fauna spotter catcher/ecologist will need to be employed for the construction phase of the project to implement a protocol of best management practises. Significant habitat features, should any be identified on site, will be flagged prior to clearing events and these areas supervised by an appropriately experienced Ecologist. Identified within the clearing supervision protocol should be flagging of hollow bearing trees, if present, followed by the removal of vegetation surrounding them. After 24 to 72 hours, these trees should then be removed. Trees must be directionally felled into open or already cleared areas.

The objective of this is to enable hollow dependant fauna an opportunity to move on their own accord as many species utilise multiple den/roost sites within a given home range should they occur. Certain areas could be identified and flagged as significant, such as old-growth trees with hollow resources and on-site identification to construction personnel will help reduce/avoid clearing. Where required, native fauna situated within areas to be cleared will be relocated to a secure area of similar habitat prior to the commencement of vegetation clearance works by a registered fauna spotter/catcher. Should any removal and relocation of nests be required, it is to be undertaken by a suitably qualified and experienced person and advice sought where necessary.

7. Significant Impact Assessment

7.1. Significant Impact Assessment Definitions

The Significant Impact Guidelines 1.1 provides specific definitions for '*a population of a species*' and '*habitat critical to the survival of a species or ecological community*'. This definition is a key consideration when conducting significant impact assessments for a threatened species or ecological community listed under the EPBC Act. The definitions are presented below.

7.1.1 Population of a species

A 'population of a species' is defined by the Significant Impact Guidelines as:
"An occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- *A geographically distinct regional population, or collection of local populations*
- *A population, or collection of local populations, that occurs within a particular bioregion.*

7.1.2 Habitat critical to the survival of a species or ecological community

The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'
"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- *For activities such as foraging, breeding, roosting or dispersal*
- *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)*
- *To maintain genetic diversity and long-term evolutionary development*
- *For the reintroduction of populations or recovery of the species or ecological community.*

Such habitat may be, but is not limited to:

- *Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community*
- *Habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.*

7.2. *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and Southeast Queensland Bioregions* Threatened Ecological Community (TEC)

7.2.1 Conservation Status

The *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* (SEFFW) is listed as Endangered under the EPBC Act.

7.2.2 Description

The SEFFW TEC varies from a tall open forest to woodland, dominated by eucalypts and/or other myrtaceous trees specifically from the *Angophora*, *Corymbia*, *Lophostemon* and *Syncarpia* genera which occurs on alluvial landforms.

7.2.3 Distribution, Location and Physical Environment

The SEFFW TEC occurs in the New South Wales North Coast (NNC) and South Eastern Queensland (SEQ) IBRA bioregions and on Curtis Island in the Brigalow Belt North (BBN) IBRA Bioregion. This encompasses an area from just north of Newcastle, New South Wales (around Raymond Terrace) in the south, to just north of Gladstone in Queensland.

The ecological community is found on alluvial landforms, including floodplains, the riparian zones of parent rivers and other order tributaries, alluvial flats, floodplain/alluvial terraces and periodically flooded depressions. It generally occurs below 50 m above sea-level (ASL), although it can occur up to 250 m ASL.

7.2.4 Threats

Threats to this TEC include clearing, hydrological changes, fragmentation legacies, weeds, climate change, fire regimes that cause declines in biodiversity, invasive fauna, disturbance from urbanisation and recreational activity, diseases and pathogens, livestock grazing, vegetation and firewood removal and urban heat effects.

7.2.5 Significant Impact Assessment

The SEFFW TEC is listed as Endangered under the EPBC Act, effective as of 5th October 2022. Therefore, any assessed impact of a proposed action on-site would trigger the proponent to make a further subsequent decision regarding whether or not to refer the action.

As detailed in **Section 4.3.2**, the SEFFW TEC was ground-truthed within the broader waterway corridors, intersecting part of the referral area (refer **Plan 3**). Species identified within the SEFFW TEC's were reflective of the Of Concern RE12.3.11 RE12.3.16 – see **Section 4.3.2** for flora species and indicators of the SEFFW TEC observed within the proposed action area. To determine whether or not the proposed action is likely to have a significant impact on the SEFFW TEC, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the SEFFW TEC is not likely.

7.3. *Anthochaera phrygia* (Regent Honeyeater)

7.3.1 Conservation Status

The Regent Honeyeater is listed as Critically Endangered under the EPBC Act.

7.3.2 Description

Regent Honeyeaters (*Anthochaera phrygia*) are black and yellow birds, endemic to mainland south-eastern Australia.

7.3.3 Distribution

Regent Honeyeaters are endemic to mainland Australia and has a patchy distribution which extends from south-east Queensland, through New South Wales (NSW) and the Australian Capital Territory (ACT), to central Victoria. Records are widely distributed across its range, but it is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas: three in NSW and one in Victoria.

7.3.4 Habitat

Inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina* spp.) where it feeds on needle-leaved mistletoe and sometimes breeds. Can be found utilizing lowland coastal forest, which may act as refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

Diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. It obtains nectar chiefly from eucalypts and mistletoe, and appears reliant on select species which provide reliable nectar flows. It prefers taller and larger diameter trees for foraging, as these typically produce more nectar.

7.3.5 Threats

Major threats to the Regent Honeyeater include clearing, fragmentation and degradation of habitat caused by invasive weeds, inappropriate fire regimes, grazing by livestock and removal of large mature trees.

7.3.6 Significant Impact Assessment

The Regent Honeyeater is listed as Critically Endangered under the EPBC Act effective from 8th July 2015. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Regent Honeyeater may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether or not the proposed action is likely to have a significant impact on the Regent Honeyeater, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the Regent Honeyeater is not likely.

7.4. Calyptorhynchus lathami lathami (South-eastern Glossy Black-cockatoo)

7.4.1 Conservation Status

The South-eastern Glossy Black-cockatoo is listed as Vulnerable under the EPBC Act.

7.4.2 Description

Glossy black cockatoos (*Calyptorhynchus lathami lathami*) are the smallest of the black cockatoos (Calyptorhynchus and Zanda spp.), with a body length of around 48 cm and weight of 420 g. Plumage is mostly dull black, with a blackish-brown head, an inconspicuous crest and a broad bulbous bill.

7.4.3 Distribution

The Glossy Black-cockatoo is distributed from Mitchell, Queensland through eastern New South Wales to East Gippsland, Victoria. Their distribution is continuous through the forested parts of the Great Dividing Range but becomes more scattered inland, to as far west as the Riverina in New South Wales.

7.4.4 Habitat

The Glossy Black Cockatoo prefers woodland areas dominated by she-oak *Allocasuarina*, or open sclerophyll forests and woodlands with a stratum of *Allocasuarina* beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed *Allocasaurina*, *Casuarina*, cypress *Callitris* and brigalow *Acacia harpophylla* woodland assemblages. In SEQ west of the Great Dividing Range, they have been observed feeding in remnant belah Casuarina cristata and bulloak *Allocasuarina luehmannii* forests. This species is also known to utilise appropriate remnant woodlands, and individual or small pockets of *Allocasuarina* and *Casuarina* feed trees in urban areas.

7.4.5 Threats

Habitat loss, degradation and fragmentation are the main threats to Glossy Black-cockatoo at present. Additional threats include wildfires, inappropriate fire management, climate change, invasive weeds, disease, predation and competition.

7.4.6 Significant Impact Assessment

The Glossy Black-cockatoo is listed as Vulnerable under the EPBC Act effective from 10th August 2022. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Glossy Black-cockatoo may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether the proposed action is likely to have a significant impact on the Glossy Black-cockatoo, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the South-eastern Glossy Black-cockatoo is not likely.

7.5. *Lathamus discolor* (Swift Parrot)

7.5.1 Conservation Status

The Swift Parrot is listed as Critically Endangered under the EPBC Act.

7.5.2 Description

Swift Parrot (*Lathamus discolor*) is a species of broad-tailed parrot, found only in south-eastern Australia. It is bright green with red around the bill, throat and forehead. The red on its throat is edged with yellow. Its crown is blue-purple.

7.5.3 Distribution

The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. The species breeds in the north-west of the state between Launceston and Smithton, however, the number of birds involved, and frequency of these breeding events is not well understood. On the mainland, Swift Parrot disperses to forage on flowers and *psyllid* lerps in Eucalyptus species within Victoria and New South Wales. This is predominantly in dry forests and woodlands of the box-ironbark region.

7.5.4 Habitat

Swift Parrot breeding range is largely restricted to the east and south-east coast of Tasmania and closely mirrors the distribution of blue gum (*Eucalyptus globulus*). Swift Parrots breed in tree-hollows in old-growth or other forest with suitable hollows, in relatively close proximity to the main food source, flowering Tasmanian blue gum. Non-breeding birds preferentially feed in inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and spotted gum (*Corymbia maculata*) woodland when in flower, otherwise often in coastal forests from eastern Victorian to the central coast of New South Wales.

7.5.5 Threats

Predation by sugar gliders, habitat loss and alteration, wildfire, collision mortality and competition are identified as the main threats for the Swift parrot.

7.5.6 Significant Impact Assessment

The Swift Parrot was listed as Critically Endangered under the EPBC Act effective May 2016. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Swift Parrot may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether the proposed action is likely to have a significant impact on the Swift Parrot, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the Swift Parrot is not likely.

7.6. *Petauroides volans* (Greater Glider)

7.6.1 Conservation Status

The Greater Glider is listed as Endangered under the EPBC Act.

7.6.2 Description

Greater Gliders (*Petauroides volans*) are arboreal nocturnal marsupials with white or cream fur below and varies from dark grey, dusky brown through to light mottled grey and cream fur above.

7.6.3 Distribution

The Greater Glider is distributed across eastern Australia from around Proserpine in Queensland, south through NSW and ACT, to Wombat State Forest in central Victoria. It occurs across an elevational range of 0–1200 m above sea level. The distribution may be patchy even in continuous areas of habitat.

7.6.4 Habitat

The Greater Glider is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges (approximately 1 – 4 ha) and a poor ability to disperse make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments. The Greater Glider shelters in tree hollows during the day with a particular presence for large hollows with a diameter > 10cm in large, old trees. Tree species Greater Glider show presence for in south-eastern Queensland include *Eucalyptus acmenoides* (broad-leaved white mahogany), *E. fibrosa* (red ironbark) and *E. tereticornis* (forest red gum).

7.6.5 Threats

Frequent and intense bushfires, inappropriate prescribed burning, climate change, land clearing and timber harvesting are key threats to the Greater Glider, where loss and fragmentation of habitat has already occurred in many areas of the species range.

7.6.6 Significant Impact Assessment

EPBC Act, Greater Glider populations are listed as Endangered, effective from 5 July 2022. The species is listed under Queensland Nature Conservation Act 1992 (Qld) (NCA) as Vulnerable. As such, the Federal Significant Impact Guidelines can be utilised to determine if a significant impact on Greater Glider may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether the proposed action is likely to have a significant impact on the Greater Glider, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the Greater Glider is not likely.

7.7. *Phascolarctos cinereus* (Koala)

7.7.1 Conservation Status

The Koala is listed as Endangered under the EPBC Act.

7.7.2 Description

Koalas (*Phascolarctos cinereus*) are native Australian tree-dwelling marsupials with predominantly grey coloured fur.

7.7.3 Distribution

The Koala is found from north-east Queensland to the south-east corner of South Australia. As a consequence of translocations, the Koala are found outside their historic range, for example, Kangaroo Island. The distribution of the Koala is influenced by altitude, temperature and leaf moisture. The density of the Koala population in coastal regions is generally greater than inland areas. Koalas are known to naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by *Eucalyptus* sp.

7.7.4 Habitat

Koala habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland and emergent food trees. Preferred food and shelter trees are naturally abundant on fertile clay soils. Along the Great Dividing Range and the coastal belt throughout the species' range, Koalas inhabit moist forests and woodlands mostly dominated by *Eucalyptus* sp.

Koalas are highly territorial, and individuals maintain their own home range which may overlap with other individuals. Home ranges are variable depending on the location, with those in "poorer" habitats being larger than in higher quality habitats. There is little evidence for longer movements in most cases, though dispersing individuals, mostly young males, may occasionally cover distances of several kilometres over land with little vegetation. In SEQ, the average distance between natal and breeding home ranges was similar for males and females, at approximately 3.5 km. Maximum dispersal distances were up to approximately 10 km for males and females. Other studies have reported movement of up to 16 km in rural SEQ.

7.7.5 Threats

Habitat loss and fragmentation, vehicle strike and predation by domestic or feral dogs are the main threats to the Koala. Extreme environmental events, such as drought, can also cause significant mortality.

7.7.6 Significant Impact Assessment

As of 12 February 2022, the EPBC Act referral guidelines for the vulnerable Koala have been redacted following the elevation of the Koala listing status under the EPBC Act to Endangered. As such, the Federal Significant Impact Guidelines are to be utilised in the interim to determine if a significant impact on Koala may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether the proposed action is likely to have a significant impact on the Koala, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Appendix F**. The results of this assessment determined that a significant impact on the Koala is not likely.

7.8. *Pteropus poliocephalus* (Grey-headed Flying-fox)

7.8.1 Conservation Status

The Grey-headed Flying-Fox is listed as Vulnerable under the EPBC Act.

7.8.2 Description

Grey-headed Flying-fox (*Pteropus poliocephalus*) is a megabat native to Australia with dark grey fur on the body and lighter grey fur on the head and a russet collar encircling the neck.

7.8.3 Distribution

The Grey-headed Flying-fox (GHFF) (*Pteropus poliocephalus*) occurs between Rockhampton in Queensland to Melbourne in Victoria. The species will usually selectively forage where food is available and as such, its patterns of occurrence and relative abundance vary between seasons and years. There are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout its geographic range.

7.8.4 Habitat

Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from *Eucalyptus* and related genera. The species will usually selectively forage where food is available and as such, its patterns of occurrence and relative abundance vary between seasons and years. There are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout its geographic range.

7.8.5 Threats

The primary threat to the Grey-headed Flying-fox is shooting and culling to protect commercial fruit farms. In addition, habitat loss and fragmentation creates competition for food sources and the loss of roosting camps is also considered to be a threat.

7.8.6 Significant Impact Assessment

EPBC Act, Grey-headed Flying-fox populations are listed as Vulnerable. The species is not specifically listed under Queensland's Nature Conservation Act 1992 (Qld) (NCA), however, retains a Least Concern status for the purposes of the Act. The *Referral guideline for management actions in grey-headed and spectacled flying-fox camps* summarise the decision process in considering the likelihood of a significant impact on the Grey-headed Flying-fox or Spectacled Flying-fox schematically. The Guidelines are specifically for the assessment of impacts on Flying-fox camps. Given no roosting sites are located on-site or in the near vicinity, it is highly unlikely that the action will involve impacts on the Grey-headed Flying-fox according to the Guidelines. However, the Guidelines also state that, '*It does not apply to the following actions... Actions which may impact on the foraging habitat of EPBC Act-listed flying-fox species. Proponents of actions of this kind should refer to the Significant Impact Guidelines 1.1.*'

To determine whether the proposed action is likely to have a significant impact on the Grey-headed Flying-fox, an assessment against the EPBC Significant Impact Guidelines 1.1 is provided in **Appendix F.** The results of this assessment determined that a significant impact on the Grey-headed Flying Fox is not likely.

8. EPBC Act Determination Advice

8.1. EPBC Act Significant Impact Guidelines

Following assessment of the significant impact guidelines, for the above mentioned threatened ecological community and threatened fauna species, the proposed upgrade of New Beith Road is not considered to have a significant impact on any MNES. This conclusion was made due to the following:

- The site is subject to existing impacts and disturbances from clearing and ongoing disturbances including dust, noise and emissions from vehicle use and other illegal uses (vandalism, four-wheel driving and offroad vehicle damage).
- Significant invasive species are present throughout the referral area including Wild Dog, Feral Pig and Lantana (*Lantana camara*) which pose significant existing threats to MNES.
- The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment potential habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite.
- No evidence of the assessed MNES threatened fauna species were observed onsite during detailed field assessments.
- Only relatively poor-quality habitat remains onsite (**Plan 3**) compared with the expanse of intact vegetation to the west of the site which provides much higher quality habitat for threatened MNES species.

Further, the Action is not considered to interfere substantially with the recovery of any MNES as no residual impacts were identified. As a result, the proposed development is identified as having a **low risk of significant impact on SEFFW TEC, Regent Honeyeater, South-eastern Glossy Black-cockatoo, Swift Parrot, Greater Glider, Koala and Grey-headed Flying Fox** and is not recommended for referral, however, despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (*i.e.,* a not a controlled action or controlled action determination).

8.2. Residual Impacts and EPBC Act Offset Policy

No residual impacts were identified.

9. Conclusion

This ecological assessment has identified Matters of National Environmental Significance (MNES) recorded or predicted to potentially occur on or near the referral area. It presents the design and mitigation measures employed to avoid and minimise project related impacts to the matters of conservation significance and quantifies the extent of potential residual impacts.

The proposed action involves directly impacting 17.12 ha of the referral area with a buffer area of 20 m comprising a total referral area of 30.16 ha, which is considered highly disturbed and low quality habitat. The upgrade to New Beith Road is projected to impact areas of an existing cleared road reserve, scattered and disturbed hollow-bearing mature eucalypt species, *Acacia sp.* dominated understorey regrowth, some *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas. As discussed extensively above, the site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from vehicle use and invasive species.

Despite assessment against the relevant EPBC Act guidelines demonstrating that referral is not recommended, the proposed action has been referred to the Department for assessment in order to provide certainty for the proponent (*i.e.,* a not a controlled action or controlled action determination).

10. References

Phillips, S. and Callaghan, J. 2011. The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koala Phascolarctos cinereus, Australian Koala Foundation, Brisbane.

11. Appendices

Appendix A

EPBC Act Protected Matters Search Tool Results

Appendix B

NCA Wildlife Online Search Results

Appendix C

Likelihood of Occurrence Assessment

Appendix D

Flora and Fauna Species Lists

Appendix E

SAT survey results

Appendix F

Significant Impact Guideline 1.1 Assessment

Appendix A

EPBC Act Protected Matters Search Tool Results

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 12-Jan-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	7
Listed Threatened Species:	48
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	1
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	28
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	20 - 30km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Grey box-grey gum wet forest of subtropical eastern Australia	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Lathamus discolor](#)			
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Numenius madagascariensis](#)			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
[Turnix melanogaster](#)			
Black-breasted Button-quail [923]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
[Maccullochella mariensis](#)			
Mary River Cod [83806]	Endangered	Translocated population known to occur within area	In buffer area only
INSECT			
[Argynnis hyperbius inconstans](#)			
Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
[Chalinolobus dwyeri](#)			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
[Macroderma gigas](#)			
Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
[Petauroides volans](#)			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
[Petaurus australis australis](#)			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Petrogale penicillata](#)			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In feature area
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
[Potorous tridactylus tridactylus](#)			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Pteropus poliocephalus](#)			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
[Arthraxon hispidus](#)			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Bosistoa transversa](#)			
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Cryptostylis hunteriana](#)			
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Cupaniopsis shirleyana](#)			
Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Cupaniopsis tomentella](#)			
Boonah Tuckeroo [3322]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Dichanthium setosum](#)			
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Fontainea venosa](#)			
[24040]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area	In feature area
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area	In feature area
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In feature area
Planchonella eerwah Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat likely to occur within area	In feature area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat known to occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - GREENBANK TRAINING AREA [31009]	QLD	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Natural			
Greenbank Military Training Area (part)	QLD	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus			
Spectacled Monarch [83946]		Species or species habitat likely to occur within area overfly marine area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
A and T Koala Billabong	Nature Refuge	QLD	In buffer area only
Koolena	Nature Refuge	QLD	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Greenbank Army Training Area C	QLD	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
130 Tully Road New Beith Residential Development v2	2021/8904	Controlled Action	Assessment Approach	In buffer area only
Bushman Drive Residential Development, Jimboomba, Qld	2018/8376	Controlled Action	Further Information Request	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Casino Ipswich Pipeline	2007/3877	Controlled Action	Completed	In buffer area only
Cedar Grove Connector Pipeline	2011/6013	Controlled Action	Completed	In buffer area only
Crowson Lane Road Upgrade	2021/9084	Controlled Action	Assessment Approach	In buffer area only
Defence Training Facilities at the Greenbank Training Area	2011/5896	Controlled Action	Post-Approval	In buffer area only
Flagstone West Urban Development Project, QLD	2014/7206	Controlled Action	Post-Approval	In feature area
Greater Flagstone master planned residential development, Undullah, Qld	2015/7530	Controlled Action	Post-Approval	In feature area
Mirvac Greater Flagstone Project - Master Planned Development, Greenbank, Qld	2016/7817	Controlled Action	Post-Approval	In buffer area only
Residential Development, Lot 4 RP45728, New Beith, Qld	2019/8398	Controlled Action	Further Information Request	In buffer area only
Residential development, Lots 3, 200 and 1, approx 6.5km SW Undullah, Qld	2016/7772	Controlled Action	Further Information Request	In buffer area only
Residential development, Teviot Road, north Beaudesert, Qld	2016/7724	Controlled Action	Post-Approval	In buffer area only
Residential Development (Lot30, SP309195) Mountain Ridge Rd, South Maclean, Qld	2019/8408	Controlled Action	Post-Approval	In buffer area only
Southern Regional Water Pipeline	2006/2593	Controlled Action	Post-Approval	In buffer area only
Spring Mountain mixed use master planned community development, Springfield, Qld	2013/7057	Controlled Action	Post-Approval	In buffer area only
Tarnbrae Greater Flagstone Residential Development, New Beith, QLD	2019/8412	Controlled Action	Further Information Request	In feature area
Teviot Downs Residential Estate, Greenbank	2011/6106	Controlled Action	Post-Approval	In buffer area only
Vedanta Masterplanned Community, Springfield Lakes	2020/8802	Controlled Action	Further Information Request	In buffer area only
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Construction and upgrade of approximately 7km of external road corridor, Flagstone, Qld	2014/7319	Not Controlled Action	Completed	In buffer area only
Flagstone Central to Cedar Grove WWTP Conveyance Pipeline	2018/8190	Not Controlled Action	Completed	In buffer area only
Greenbank to Flagstone Central Conveyance Pipeline Project, Qld	2018/8344	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
South West Pipeline and Wyaralong Tanks Project, Qld	2018/8320	Not Controlled Action	Completed	In buffer area only
South West Transport Corridor	2006/2547	Not Controlled Action	Completed	In buffer area only
Spring Mountain Park rural residential estate, stages 15-18, Greenbank/New Beith, Qld	2013/7030	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Construction & Operation 275/330kV Transmission Line	2006/2820	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Referral decision				
130 Tully Road, New Beith, Residential Development	2020/8848	Referral Decision	Referral Publication	In buffer area only
Kagaru to Acacia Ridge and Bromelton Inland Rail Project	2021/8927	Referral Decision	Referral Publication	In buffer area only

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix B

NCA Wildlife Online Search Results

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -27.7549
Longitude: 152.9421
Distance: 5
Email: madelinedooley@saundershavill.com
Date submitted: Thursday 12 Jan 2023 09:14:20
Date extracted: Thursday 12 Jan 2023 09:20:08

The number of records retrieved = 9

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		1
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	1
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V	V	1
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		10
animals	mammals	Macropodidae	*Petrogale penicillata*	brush-tailed rock-wallaby		V	V	2
animals	mammals	Petauridae	*Petaurus australis australis*	yellow-bellied glider (southern subspecies)		V	V	1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	53
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	1/1
plants	land plants	Myrtaceae	*Rhodamnia maideniana*	smooth scrub turpentine		CR		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -27.7877
Longitude: 152.9345
Distance: 5
Email: madelinedooley@saundershavill.com
Date submitted: Thursday 12 Jan 2023 09:13:27
Date extracted: Thursday 12 Jan 2023 09:20:06

The number of records retrieved = 7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	1
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V	V	1
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		2
animals	mammals	Petauridae	*Petaurus australis australis*	yellow-bellied glider (southern subspecies)		V	V	1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	20
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	1/1
plants	land plants	Myrtaceae	*Melaleuca irbyana*			E		2

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix C

Likelihood of Occurrence Assessment

Likelihood of occurrence assessment

Likelihood of occurrence	Assessment criteria
Unlikely	No previous records of the species within the locality and one or more of the following criteria is met: • Not previously recorded on the referral area and surrounds and the referral area is beyond the current known geographic range; or • Dependent on specific habitat types or resources that are not present on the referral area; or • Considered extinct in the wild.
Low	No previous records of the species within the locality and one or more of the following criteria is met: • Site and local connectivity contains marginal habitat excluding suitable/critical habitat attributes; • Lack of recent records exist in a regional context (use 1980 as a delineation); or • Potential for vagrant or individual of the species to survive short-term;
Moderate	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded in proximity to the referral area (*i.e.,* vagrant individuals); or • Potential habitat typologies or resources are present on the referral area.
High	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded on the referral area; • Dependent on habitats or habitat resources that are available on the referral area; or • Suitable habitats are available on the referral area that are capable of supporting a resident population or individuals of the species.
Known	Flora species or ecological community positively identified during field surveys within the referral area. Fauna species positively recorded during field surveys within the referral area or adjacent habitats.

Matters of National Environmental Significance						
Name	**Status**	**Type of presence**	**Description of the community/preferred habitat**	**Likelihood of Occurrence Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
Wetlands of International Importance (Ramsar)						
Moreton Bay			The site is located approximately 20 - 30 kilometres upstream from the RAMSAR site.	There will be no measurable affect to Moreton Bay.	Unlikely	Unlikely
Threatened Ecological Communities						
Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community	E	Community may occur within area	In Queensland, this ecological community coincides with two regional ecosystem communities including Of Concern RE12.1.1 (*Casuarina glauca* +/- mangroves woodland) as well as areas where the canopy is dominated by *Casuarina glauca* within 12.3.20 (*Melaleuca quinquenervia, Casuarina glauca +/- Eucalyptus tereticornis, Eucalyptus siderophloia* open forest on low coastal alluvial plains).	Desktop analysis and field surveys confirmed that regional ecosystem 12.1.1 and 12.3.20 do not occur on-site.	Unlikely	Unlikely
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	E	Community likely to occur within area	The Coastal Swamp Sclerophyll Forests of South-eastern Australia is a type of forest or scrub associated with freshwater (to brackish) wetlands on low-lying coastal areas. Several regional ecosystem communities coincide with this TEC, including Least Concern RE 12.2.7 (*Melaleuca quinquenervia* or rarely *M. dealbata* open forest on sand plains), Of Concern RE 12.3.4/12.3.4a (*Melaleuca quinquenervia*, *Eucalyptus robusta* woodland on coastal alluvium/*Eucalyptus bancroftii* open woodland often with *Melaleuca quinquenervia*), Least Concern RE 12.3.5 (*Melaleuca quinquenervia* open forest on coastal alluvium), Least Concern RE	Desktop analysis and field surveys confirmed that regional ecosystems 12.2.7, 12.3.4/12.3.4a, 12.3.5, 12.3.6 and 12.3.20 do not occur on-site.	Unlikely	Unlikely

			12.3.6 (*Melaleuca quinquenervia +/- Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia* open forest on coastal alluvial plain) and Endangered RE 12.3.20 (*Melaleuca quinquenervia, Casuarina glauca +/- Eucalyptus tereticornis, E. siderophloia* open forest on low coastal alluvial plain).			
Grey box-grey gum wet forest of subtropical eastern Australia	E	Community likely to occur within area	The ecological community is limited to the New South Wales north coast and south eastern Queensland IBRA Bioregions from near Coffs Harbour in NSW to the southern areas of south-east Queensland. Within these areas it occurs in the Moreton Basin, Scienic Rim, Woodenbong, Cataract, Rocky River Gorge, Washpool, Dalmorton, Clarence Sandstones and Chaelundi IBRA subregions. The ecological community typically occurs on escarpment slopes and foothills, on inland hills and ranges between 100m and 600m altitude. This ecological community coincides with regional ecosystems including Of Concern RE12.9-10.3 and Least Concern 12.8.14a.	Desktop analysis and field surveys confirmed that regional ecosystem 12.9-10.3 and 12.8.14a do not occur on-site or adjacent to the New Beith Road Reserve.	Unlikely	Unlikely
Lowland rainforest of subtropical Australia	CE	Community may occur within area	This TEC occurs mainly on basalt and alluvial soils and is characteristic of a low abundance of *Eucalyptus, Melaleuca* and *Casuarina* species. Specimens with buttress roots and a diversity of vines are common throughout this TEC. This community is usually associated Regional Ecosystems 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, and 12.12.1.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site. The Regional Ecosystems associated with this TEC were confirmed to be absent on-site.	Unlikely	Unlikely
Poplar Box Grassy Woodland on Alluvial Plains	E	Community may occur within area	The Poplar Box Grassy Woodland on Alluvial Plains ecological community is typically a grassy woodland with a canopy dominated by *Eucalyptus populnea* and understorey mostly of grasses and other herbs. The ecological community mostly occurs in gently undulating to flat landscapes and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin. In Queensland, this TEC corresponds with 11.3.2, 11.3.17, 11.3.7, 11.4.12 and 12.3.10.	Desktop analysis and detailed field surveys confirmed that this TES does not occur on-site or adjacent to the site. Regional ecosystems 11.3.2, 11.3.17, 11.3.7, 11.4.12 and 12.3.10 do not occur on-site.	Unlikely	Unlikely
Subtropical eucalypt	E	Community likely to occur within area	The structure of the ecological community, in its undisturbed state, varies from tall open forest to woodland, although partial	Desktop analysis and field surveys confirm the Of Concern RE12.3.11	Low	Moderate

floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions			clearing may have reduced the canopy to scattered trees in some areas. The tree canopy is dominated by eucalypts and/or other myrtaceous trees (specifically from the Angophora, Corymbia, *Lophostemon* and *Syncarpia* genera), often as a mixture of species. A mid-layer or sub-canopy of small trees may be present – with scattered to dense shrubs. For example, *Melaleuca*, *Leptospermum* and related genera may form dense thickets beneath the main canopy, or in gaps between canopy trees. The mid-layer may be sparser in lower rainfall areas, or where partially cleared, grazed or frequently burnt. The ecological community often has climbers extending into the mid-layer and canopy. The ecological community generally has a more diverse and abundant groundcover than ecological communities on locally adjoining slopes. Its groundcover typically includes grasses, forbs, ferns, sedges and scramblers. The ecological community typically forms 'mosaics' with other floodplain forest communities, lowland woodlands and treeless wetlands. The following Regional Ecosystems form part of or align with the TEC: 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3b, 12.3.3d, 12.3.4a, 12.3.7, 12.3.7c, 12.3.7d 12.3.10, 12.3.11, 12.3.11a, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15, 12.3.19.	occurs onsite. This RE was found to be associated with a small creek crossing area within the New Beith Road reserve. The current road passes directly through the vegetation described as the RE 12.3.11.		
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	Community likely to occur within area	Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. In Queensland the ecological community is a primary component of the following Regional Ecosystems: 11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8 and 13.12.9. It can also be a smaller component of the following regional ecosystems: 11.3.23, 12.8.16 (only at the far western edge of the bioregion), 13.3.4, 13.11.3 and 13.11.4. These regional ecosystems range in conservation status from 'not of concern at present' to 'endangered'.	Desktop analysis and field surveys confirmed that regional ecosystems 11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8 and 13.12.9, 11.3.23, 12.8.16, 13.3.4, 13.11.3 and 13.11.4 do not occur on-site.	Unlikely	Unlikely

Scientific name	**Common name**	**Listing Status***		**EPBC code**	**Habitat and Distribution**	**Microhabitat keywords**	**Likelihood of Occurrence Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		EPBC Act	**NC Act**						
Birds									
Anthochaera phrygia	Regent Honeyeater	CE	E	82338	Regent Honeyeaters mostly occur in dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites. These areas are generally associated with creek flats and river valleys and foothills. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. They are a generalist forager, which mainly feed on nectar from a wide range of eucalypts and mistletoes.	*Corymbia citriodora* forest	The site is not dominated by box and ironbark eucalypts, although *Eucalyptus siderophloia* (Grey Ironbark) was recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. Bushland west of the site shows a record of the Regent Honeyeater within 5 km south-west of the referral area according to Atlas of Living Australia (ALA).	Low	Low (potential foraging habitat)
Botaurus poiciloptilus	Australasian Bittern	E	-	1001	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate south-east and south-west. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or	Wetlands, permanent water, freshwater dam	The regional ecosystems associated with the New Beith Road reserve include Least Concern RE 12.9-10.2, Of Concern composite RE 12.3.11 / 12.3.7 and Of Concern RE12.9-10.7. This site does not contain any	Unlikely	Unlikely

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		EPBC Act	NC Act						
					waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over muddy or peaty substrate. The Australasian Bittern occurs in the far south-east of Queensland; it has been reported North to Baralaba and West to Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions.		terrestrial wetlands or swamps with tall dense vegetation. No recent records of the Australasian Bittern within 10 km of the referral area according to ALA and BioMaps.		
Calidris ferruginea	Curlew Sandpiper	CE	E	856	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and		No suitable foraging or breeding habitat in the form of wetlands and mudflats occurs on-site.	Unlikely	Unlikely

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		EPBC Act	NC Act						
					brackish waters. In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns.				
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	V	V	67036	This species prefers woodland areas dominated by she-oak *Allocasuarina*, or open sclerophyll forests and woodlands with a stratum of *Allocasuarina* beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed *Allocasaurina*, *Casuarina*, cypress *Callitris* and brigalow *Acacia harpophylla* woodland assemblages. In SEQ west of the Great Dividing Range, they have been observed feeding in remnant belah Casuarina cristata and bulloak *Allocasuarina luehmannii* forests. This species is also known to utilise appropriate remnant woodlands, and individual or small pockets of *Allocasuarina* and *Casuarina* feed trees in urban areas	*Allocasuarina, Casuarina*	Field surveys located scattered isolated black sheoak (*A. littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. Records of the species approximately 8 km west of the road reserve were recorded in 2021 on BioMaps. Suitable foraging and breeding habitat for this species suggests a moderate likelihood of occurrence on site.	Medium	Medium-Low
Charadrius lechenaultii	Greater Sand Plover	V	V	877	In the non-breeding grounds in Australasia, the Greater Sand Plover is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. They seldom occur at shallow freshwater wetlands.				
Cyclopsitta diophthalma coxeni	Coxen's Fig Parrot	E	E	59714	The Coxen's Fig Parrot occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest. Food is mainly taken from figs however other species fruit have been recorded in their diet including *Elaeocarpus grandis, Syzygium corynanthum, Litsea reticulata* and *Grevillea robusta*.		Preferred foraging vegetation including figs and *Elaeocarpus grandis*, *Syzygium corynanthum* and *Litsea reticulata* were not recorded within the referral area during field surveys, although isolated *Grevillea robusta* species were found within a creek crossing along the New Beith Road reserve. No rainforest habitat is present within the assessment area or adjacent vegetation therefore it is considered unlikely this species will occur within the proposed impact area.	Unlikely	Low
Erythrotriorchis radiatus	Red Goshawk	V	V	942	A wide ranging and highly mobile species generally observed over eucalypt habitats. This species prefers forest and woodland with a mosaic of vegetation types, large prey populations (birds) and permanent water. The vegetation types include eucalypt woodland, open forest, tall open		Eucalypt woodland and open forest vegetation types are present within the New Beith Road Reserve Area. However, there is no evidence of permanent residence, and due to the scarcity of this species and lack	Low	Low

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		EPBC Act	NC Act						
					forest, gallery rainforest, swamp sclerophyll forest and rainforest margins. Habitat has to be open enough for fast attack and manoeuvring in flight, but provide cover for ambushing of prey.		of local records, its occurrence is low.		
Falco hypoleucos	Grey Falcon	V	V	929	The Grey Falcon is a medium-sized, compact, pale falcon with a heavy, thick-set, deep-chested appearance. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Like other falcons it utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring; two or three eggs are laid. The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*).		Scattered large trees and marginal open woodland are present within the site, however, the majority of the site is heavily disturbed from vehicle use and adjacent rural landscapes. Field surveys did not observe any large nests within the present tall trees which could indicate the presence of a large raptor bird such as the Grey Falcon. Furthermore, a review of ALA indicates no records of the species within the region. For these reasons it is unlikely that this species would occur.	Low	Low

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Geophaps scripta scripta	Squatter Pigeon (southern)	V	V	64440	This species inhabits open grasslands and woodlands typically with a native understorey although may occur in artificial pasture.		This site does not contain suitable habitat, with the majority of the road reserve and adjacent land largely modified with a limited native understorey. In addition, the species is very rarely observed in southern Queensland, and thus this species is not expected to occur onsite.	Low	Unlikely
Grantiella picta	Painted Honeyeater	V	V	470	The species inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees, as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrower strips.		Suitable habitat in the form of eucalypt forests/ woodlands, riparian woodlands and acacia-dominated woodlands were present within the New Beith Road reserve and within adjacent remnant bushland. Field surveys did not record this species. There are no recent records of the species within 10 km of the referral area on ALA and BioMaps.	Low	Low
Hirundapus caudacutus	White-throated Needletail	V	V	682	Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the		While some areas of remnant vegetation remain, large areas of the road reserve and adjacent rural and residential areas represent heavily modified open space with	Low	Low

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		EPBC Act	NC Act						
					canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps.		scattered larger trees. This environment is the less preferred of the White-throated Needletail and therefore it is unlikely the species would find the site as a suitable roosting area. The species was not observed onsite during survey works. The lack of recent local records suggests a low likelihood this species would occur onsite.		
Lathamus discolor	Swift Parrot	CE	E	744	The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations.		Most of the referral area within the New Beith road reserve is mapped as non-remnant Category X vegetation under the Queensland *Vegetation Management Act 1999*. There are no records of the species within 5 km of the site on Atlas of Living Australia and the species was not recorded during survey work. Overall, due to the highly disturbed state of the site, the limited area of foraging habitat, and presence of more suitable foraging habitat within the broader landscape, there is considered to be low potential	Low	Low (potential foraging habitat)

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		EPBC Act	NC Act						
							that the Swift Parrot would utilize the vegetation on-site and in the adjoining vegetation. Any occurrence would be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.		
Ninox strenua	Powerful Owl	-	V	-	The Powerful Owl is found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches.		Habitat for this species is present within the referral area, however, has undergone and continues to undergo significant disturbance from rural and illegal uses of the site. Records of the species have been recorded within 10km, however these were recorded at least 5 years ago.	Low	Low
Numenius madagascariensis	Eastern Curlew	CE	E	847	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by		No suitable habitat was observed throughout the assessment area.	Unlikely	Unlikely

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					mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms.				
Rostratula australis	Australian Painted-snipe	E	V	77037	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania.		No suitable wetlands occur on-site. It is unlikely that this species will occur.	Unlikely	Unlikely
Turnix melanogaster	Black-breasted Button Quail	V	V	923	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However the species has also been recorded in a variety of low coastal heathlands around Fraser Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured.		The site does not contain dry rainforest or vegetation immediately adjacent to rainforest, and no heathlands are present. Deep leaf litter is also absent over the majority of the site. It is unlikely that this species will occur.	Unlikely	Unlikely
Amphibians									
Adelotus brevis	Tusked Frog	-	V	-	The Tusked Frog is distributed along the coastal plain and adjacent Great Dividing Range from central Queensland to southern New South Wales (Cogger 1994). It occurs in a wide range of habitats		Suitable wet sclerophyll and rainforest habitat for the Tusked Frog is not present onsite. Recent records of this species within or adjacent to the project area are absent from ALA and BioMaps	Low	Low

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					including rainforest, wet sclerophyll forest and flooded pasture.		(most recent record within 10 km recorded in 2011).		
Fish									
Maccullochella mariensis	Mary River Cod	E	-	83806	Found in southeast Queensland in the Mary River system, their ideal habitat is described as deep, shaded, slow flowing pools with plenty of snags and log-piles.		No river system is present within the assessment area. Several waterways traverse the New Beith Road reserve, however these contain lower water levels, stagnant water and lack of significant habitat features able to support this species.	Unlikely	Unlikely
Insects									
Argynnis hyperbius inconstans	Australian Fritillary	CE	E	88056	Most specimens have been collected from river estuaries or swampy coastal areas at or near sea level. The Australian fritillary butterfly is restricted to open, swampy, coastal areas where the larval food plant, *Viola betonicifolia*, grows as a small, insignificant ground herb in association with *Lomandra longifolia* (Long Leaved Matrush) and grasses, especially the grass *Imperata cylindrica* (Bladey Grass). This habitat is called *Melaleuca* wetlands, although the larval food plant does not		No suitable coastal habitat was observed throughout the assessment area.	Unlikely	Unlikely

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		EPBC Act	NC Act						
					occur in all sub-types of this plant community.				
Mammals									
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	183	The Large-eared Pied Bat roosts on sandstone cliffs and fertile woodland valley habitat within close proximity of each other. However, in South East Queensland habitat includes rainforest and moist eucalypt forest habitats at high elevations.		No suitable high elevation habitat nor rainforest vegetation to support this species occurs on-site.	Low	Unlikely
Dasyurus maculatus maculatus	Spot-tailed Quoll	E	V	75184	The Spot-tailed Quoll has a preference for mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.		The road reserve has been subjected to high levels of disturbance with areas adjacent to the site historically cleared and continuously modified through the years. No suitable denning habitat was observed during field surveys. Due to the lack of suitable habitat, it is unlikely that this species would occur.	Low	Unlikely
Macroderma gigas	Ghost Bat	V	E	174	Ghost Bats have been recorded in both arid regions (Pilbara region) and rainforest areas (north Queensland). *Macroderma*		No suitable foraging or roosting habitat to support this species	Low	Unlikely

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		EPBC Act	NC Act						
					gigas roost in caves, old mine tunnels and in deep cracks in rocks. This species is distributed widely however patchily across the northern half of Australia, being found in a variety of tropical habitats.		occurs on-site, or in the nearby vicinity.		
Petauroides volans	Greater Glider	E	V	254	The Greater Glider is an arboreal nocturnal marsupial that is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges and a poor ability to disperse make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments.		A variety of eucalypt species occur within and adjacent to the New Beith Road reserve, however some areas of Category X vegetation are highly disturbed and represent historical clearing with only scattered mature trees remaining. Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Records of this species have been recorded within 15 km of the site, in Flinders Peak Conservation Park. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat it is considered	Moderate	Moderate-low

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		EPBC Act	NC Act						
							a moderate likelihood this species would occur onsite.		
Petaurus australis australis	Yellow-bellied Glider	V	V	87600	The Yellow-bellied Glider largely occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Denning occurs within hollows of large trees, with the species preferring to live in family groups of two to six individuals. This species is very mobile and occupy large home ranges of 20 to 85 ha to encompass dispersed and seasonally available food resources.		Eucalypt forest was identified onsite, although the vegetation is not within a high rainfall area and the soils are considered nutrient poor. Large portions of adjacent vegetation have been modified or cleared for agricultural purposes. Hollows were identified during field surveys within scattered mature eucalypt species along the New Beith Road reserve. No individuals were observed during field surveys and no feeding marks typical of the species were recorded. Records of the species have been recorded within 15 km north-east of the site in 2015. Although the site comprises high levels of disturbance, due to presence of suitable habitat and recent local records, there is a low likelihood this species would occur onsite.	Moderate	Low

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		EPBC Act	NC Act						
Petrogale penicillata	Brush-tailed Rock Wallaby	V	V	225	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. It also utilises tree limbs. While it appears that most Brush-tailed Rock-wallaby colonies are on north-facing slopes and cliff lines, colonies have been found on south-facing cliffs in Kangaroo Valley, in the Macleay River Gorge, in the Warrumbungles and at Mt Kaputar, although usually in lower densities.		Suitable habitat in the form of rocky habitats, rocky outcrops, steep rocky slopes, cliffs and gorges does not occur on-site. Recent, local records for this species are lacking.	Unlikely	Unlikely
Phascolarctos cinereus	Koala	V	V	85104	The Koala is found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland.		Portions of the New Beith Road reserve extent and surrounding vegetation are mapped as Category X (non-remnant) but it also contains vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (QLD). Desktop investigations found Koala Habitat Areas are mapped on-site however it does not fall within a Queensland Government mapped Koala Priority Area.	Moderate	Moderate-Low

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							Field surveys confirmed Koala habitat is present within the referral area in the form of *Corymbia citriodora* and *Angophora leicarpa* dominated woodland fringing the southern extent of the road reserve. Field surveys of the Eucalypt dominated areas found the northern and eastern patches to contain retained mature canopy trees with a fairly intact understorey. Vegetation in the south and southwest has been cleared, with very few mature canopy trees remaining and a modified ground and understorey layer of maintained grass. This area experiences high levels of disturbance from vehicle and motorbike uses. Vegetation in the south contains scattered mature canopy trees with a dense understorey of *Acacia sp*. reflecting historic fire disturbance.		

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							Connectivity to vegetation is limited with residential areas to the north and cleared modified areas in the south and southwest. Vegetation associated with Flagstone Creek remains a form of connectivity of Koala habitat from vegetation in the east to larger intact bushland in the west. No evidence of Koala in the form of scats, scratch marks or direct observations was recorded during field surveys, suggesting Koalas are not utilising the site.		
Potorous tridactylus tridactylus	Long-nosed Potoroo	V	V	66645	The Long-nosed Potoroo inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrub of tea-trees or *Melaleucas*. A sandy loam soil is also a common feature.		No suitable habitat in the form of coastal heath or wet sclerophyll forest is present on-site. Additionally, the wooded areas on-site were not reflective of the dense understory with occasional open areas this species requires for habitat.	Unlikely	Unlikely
Pteropus poliocephalus	Grey-headed Flying-fox	V	-	186	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires		Large areas of the road reserve are mapped as Category X (non-remnant) but it also contains	Moderate	Low (potential

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from *Eucalyptus* and related genera.		vegetation mapped as Category B (remnant) under the *Vegetation Management Act 1999* (Qld). Field surveys confirmed the presence of potential habitat for the GHFF on-site in the form of eucalypt woodland within the east and further west, with some fragmented eucalypt woodland present to the south. Species included *Eucalyptus tereticornis* (Forest Red Gum), *Corymbia intermedia* (Pink Bloodwood) and *Eucalyptus siderophloia (*Grey Ironbark). In addition, suitable foraging vegetation occurs on-site with scattered *Melaleuca quinquenervia* species throughout the waterways which adjoin the New Beith Road reserve extent, however the species the species was not seen utilising this vegetation during spotlighting surveys. There are no observed roosts on-site, with the nearest roost located		foraging habitat)

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
							approximately 5 km south-east of the site at Homestead Drive (464), with the latest survey in August 2013. Flowering *Eucalypts* were present during spotlighting activities although the Grey-headed Flying-fox was not recorded. Foraging habitat for the species was recorded on the site although there is higher quality habitat adjacent to the site. There is a moderate likelihood that the species may opportunistically forage on-site.		
Plants									
Arthraxon hispidus	Hairy-joint Grass	V	V	9338	Hairy-joint grass is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland.	rainforest; swamp	The vegetation within this area does not represent the habitat preferred by this species and is heavily disturbed. As habitat to support this species does not occur on-site and there are no records of this species within the locality, it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
Bosistoa transversa	Three-leaved Bosistoa	V	-	16091	The Three-leaved Bosistoa is conserved within Mt Warning National Park, Numbinbah Nature Reserve, Limpinwood Nature Reserve and Whian Whian State Forest. While population information is unavailable, it is thought to be common in its range. It generally grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 3oo metres in altitude. It is commonly associated with *Argyrodendron trifoliolatum, Syzygium hodgkinsoniae, Endiandra pubens, Dendrocnide photinophylla, Acmena ingens, Diploglottis australis and Diospyros mabacea*.		Rainforest/wet forest and the species that the Three-leaved Bosistoa is commonly associated with were not located on site. Unlikely to occur on-site due to lack of suitable habitat and local records. The species was not recorded on site during survey works.	Low	Unlikely
Coleus habrophyllus	-	E	E	64589	Plants have been recorded growing on chert or sandstone outcrops, in open woodlands often in shaded situations near vine forest. Seven populations are known including: Oxley Creek, Greenbank; Opposum Creek, Springfield; Woogaroo Creek, Goodna; three populations within White Rock Conservation Park, incorporating Six Mile Creek and near Ormeau (south of Beenleigh).		Suitable habitat to support the growth and success of this species was not observed within the assessment area. The lack of associated species and heavy disturbance of the site suggests it's unlikely this species would be supported within the assessment area. The species was not recorded on site during survey works.	Unlikely	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
Cryptostylis hunteriana	Leafless Tongue-orchid	V	SL	3205	Leafless tongue-orchid habitats include wet heath, sedgeland, grasstree plains and in woodland with scribbly gum, silvertop ash, red bloodwood and black she-oak.		Suitable habitat to support the growth and success of this species was not observed within the assessment area. The lack of associated species and heavy disturbance of the site suggests it's unlikely this species would be supported within the assessment area. The species was not recorded on site during survey works.	Low	Unlikely
Cupaniopsis shirleyana	Wedge-leaf Tuckeroo	V	V	3205	The Wedge-leaf Tuckeroo occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream beds and along riverbanks at altitudes up to 550 m above sea level. This species is also likely to occur on the margins of native vegetation in scrubby urbanised areas. Predominately found on dark brown sandy loams and sandy clay loams (pH 5-7.5) and rocky scree slopes. Generally, these soils have formed from volcanic parent materials (mainly granites and granodiorites, basalt and andesitic flows, and pyroclastics).		Preferred habitat in the form of dry rainforest is not present on-site. There are no local records within the ALA sightings data therefore it is unlikely that it would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely
Cupaniopsis tomentella	Boonah Tuckeroo	V	V	3322	Boonah Tuckeroo is known only from an area between Boonah and Ipswich in		Preferred habitat in the form of vine thickets is not present onsite. There	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					south-eastern Queensland. It grows in vine thickets predominantly on fertile clay soils. These areas have been extensively cleared for agriculture and close settlement over the last 150 years, and the only seven known occurrences are confined to small, isolated remnants on scree slopes and roadsides.		are no recent records of the species within the vicinity of the site (last recorded in 1990).		
Dichanthium setosum	Bluegrass	V	-	14159	In Queensland, bluegrass has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions. *Dichanthium setosum* is associated with heavy basaltic black soils and stony red-brown hardsetting loam with clay. It can be found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. The extent to which this species tolerates disturbance is unknown.		There are no local records of this species within the Queensland Wildlife Online sightings data, with the closest sighting in the Toowoomba and surrounds. This species is unlikely to occur on-site due to lack of suitable conditions.	Unlikely	Unlikely
Fontainea venosa		V	V	24040	Occurs in notophyll vine forest and vine thicket with a mean annual rainfall of 1000-1100 mm on soils derived from and containing abundant andesitic rocks, often on rocky outcrops or along creeks.		No suitable habitat or associated species are present within the referral area.	Unlikely	Unlikely
Macadamia integrifolia	Macadamia Bush	V	V	7326	The Macadamia Nut grows in remnant rainforest. It prefers to grow in mild frost-		Preferred habitat in the form of dry rainforest is not present on-site.	Unlikely	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					free areas with reasonably high rainfall. Vegetation communities range from notophyll mixed forest, extremely tall closed forest, simple notophyll mixed very tall closed forest to simple microphyll-notophyll mixed mid-high closed forest with Araucaria and Argyrodendron emergents.		There are no local records within the BioMaps sightings data therefore it is unlikely that it would occur on-site. The species was not recorded on site during survey works.		
Macadamia tetraphylla	Rough-shelled Bush Nut	V	V	6581	This species generally occurs in subtropical rainforest and complex notophyll vineforest, at the margins of the forests and mixed sclerophyll forest. It occurs in restricted habitat, growing on moderate to steep hillslopes on alluvial soils at well drained sites.		Preferred habitat in the form of dry rainforest is not present on-site. There are no local records within the BioMaps sightings data therefore it is unlikely that it would occur on-site. The species was not recorded on site during survey works.	Unlikely	Unlikely
Melaleuca irbyana	Swamp Tea-tree	-	E	-	*Melaleuca irbyana* grows in flat areas that are periodically waterlogged, in eucalypt forest, mixed forest and Melaleuca woodland with a sparse and grassy understorey. It grows on poorly draining, heavy clay soils.		Eucalypt forest and mixed forest vegetation . ALA shows records of the species within 10 km of the referral area.	Low	Low
Notelaea ipsviciensis	Cooneana Olive	CE	E	81858	The Cooneana Olive survives as an understorey plant in degraded, eucalypt dominated dry sclerophyll vegetation communities. Soils in the area are of low		Suitable eucalypt dominated dry sclerophyll vegetation communities are present within the road reserve and adjoining vegetation. There are	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					fertility, depauperate and sandstone-based. This species prefers open woodland communities with open canopies. The known population is adjacent to subdivided, modified and developed land.		no local records within the BioMaps sightings data therefore there is a low likelihood that it would occur on-site. The species was not recorded on site during survey works.		
Notelaea lloydii	Lloyd's Olive	V	V	15002	The species occurs on undulating to hilly terrain either in moist gullies or on gentle to steep dry slopes, but is rarely found on rocky outcrops. Soil types are mostly shallow, well drained and stony to very rocky in texture. Found in the ecotone between eucalypt open forests and vine thickets at 80-480 m above sea level (asl).		Suitable habitat in the form of moist gullies and gentle to steep dry slopes are present in adjoining remnant vegetation along the New Beith Road reserve. A recent record on BioMaps in 2020 shows the species observed approximately 13 km west of the site.	Low	Low
Picris evae	Hawkweed	V	V	10839	Hawkweed occurs in Eucalyptus open woodland with a grassy understorey composed of *Dichanthium spp.* Upper stratum species include *Eucalyptus melliodora*, *E. crebra*, *E. populnea*, *E. albens*, *Angophora subvelutina*, *Allocasuarina torulosa*, and *Casuarina cunninghamiana*.		Suitable Eucalypt woodland is present within the New Beith Road reserve, however the associated species did not occur onsite. The species was not recorded on site during survey works.	Low	Unlikely
Planchonella eerwah	Shiny-leaved Condoo	E	E		The species prefers subtropical rainforest, dry rainforest and *Araucaria cunninghamii* vine scrub.		Suitable habitat to support the growth and success of this species was not observed within the assessment area. The lack of associated species and heavy	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
							disturbance of the site suggests it's unlikely this species would be supported within the assessment area. The species was not recorded on site during survey works.		
Rhodamnia maideniana	Smooth Scrub Turpentine	-	CE	-	Sub-tropical rainforest plant of eastern Australia. It occurs in coastal areas, north of the Richmond River, New South Wales and adjacent areas over the border into Queensland. A bushy shrub growing to 3 metres tall.		Suitable habitat to support the growth and success of this species was not observed within the assessment area. The lack of associated species and heavy disturbance of the site suggests it's unlikely this species would be supported within the assessment area. The species was not recorded on site during survey works.	Low	Unlikely
Rhodamnia rubescens	Scrub Turpentine	CE	CE	15763	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.		Preferred habitat in the form of rainforest is not present on-site. In addition, there are no records of this species within the locality, so it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.	Unlikely	Unlikely
Rhodomyrtus psidioides	Native Guava	CE	CE	19162	Pioneer species found in littoral, warm temperate and subtropical rainforest and		Preferred habitat in the form of rainforest and wet sclerophyll forest is not present on-site. Several	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					wet sclerophyll forest often near creeks and drainage lines.		waterways and drainage lines occur through the road reserve. There are no records on ALA of this species within 5 km of this site however further west, a record of the species occurs within the intact bushland associated with Flagstone Creek. The species was not recorded on site during survey works.		
Samadera bidwillii	Quassia	V	V	29708	Quassia commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland. Quassia is commonly found in areas adjacent to both temporary and permanent watercourses in locations up to 510 m altitude. The species occurs on lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils.		This species favours lowland rainforest or rainforest margins which are absent from the site and the surrounding environment. Furthermore, no local records exist, therefore indicating it is unlikely the species would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely
Thesium australe	Austral Toadflax	V	V		Austral Toadflax is semi-parasitic on the roots of a range of grass species, notably *Themeda triandra* (Kangaroo Grass). It occurs in shrubland, grassland or woodland, often on damp sites.		The open paddock environment towards the centre of the road reserve is heavily modified and dominated by invasive grass and forb species which have inhibited the growth of native flora. On-going disturbance has limited the	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
							potential for threatened species to reside within the area. Although the associated species *Themeda triandra* (Kangaroo Grass) was recorded on-site, there are no local records ALA sightings data therefore it is unlikely that it would occur on-site. The species was not recorded on site during survey works.		
Reptiles									
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	LC	59628	Three-toed Snake-tooth Skins have been found in loose, well mulched, friable soils, in and under rotting logs, in forest litter, under fallen hoop pine bark and under decomposing cane mulch. Projected foliage cover was estimated at 70-80% at two research sites.		Preferred habitat for this species is considered absent from the referral area. In addition, there are no records of this species within the locality, so it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely
Delma torquata	Collared Delma	V	V	1656	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.		Preferred habitat for this species is considered absent from the referral area. In addition, there are no records of this species within the locality, so it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
Furina dunmalli	Dunmall's Snake	V	V	59254	Dunmall's Snake has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow other Wattles, native Cypress or Bull-oak, and various Blue Spotted Gum, Ironbark, White Cypress Pine and Bull oak open forest and woodland associations on sandstone derived soils. Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level. The snake is very rare or secretive with limited records existing. It has been recorded at Archokoora, Oakey, Miles, Glenmorgan, Wallaville, Gladstone, Lake Broadwater, Mount Archer, Exhibition Range National Park, roadside reserves between Inglewood and Texas, Rosedale, Yeppoon and Lake Broadwater Conservation Park.		Preferred habitat for this species is considered absent from the referral area. In addition, there are no records of this species within the locality, so it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.	Low	Unlikely
Hemiaspis damelii	Grey Snake	E	E	1179	Distributed throughout the eastern interior, from central inland New South Wales, north to coastal areas near Rockhampton in Queensland (Cogger		Preferred habitat for this species is considered absent from the referral area. In addition, there are no records of this species within the	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act						
					2000; Hobson 2003; Wilson and Swan 2010; Hobson 2012). Within Queensland, records are known from near Goondiwindi and the adjacent Darling-Riverine Plain, from the Darling Downs and from the Lockyer Valley. The core area for the grey snake in the Brigalow Belt is south of the Great Dividing Range between Dalby and Glenmorgan (Hobson 2003; 2012). Hemiaspis damelii favours woodlands (typically brigalow Acacia harpophylla and belah Casuarina cristata), usually on heavier, cracking clay soils, particularly in association with water bodies or in areas with small gullies and ditches (gilgais) (Wilson and Swan 2010; Hobson 2012).		locality, so it is unlikely that this species would occur on-site. The species was not recorded on site during survey works.		

**Status abbreviations are as follows: CE = Critically Endangered, E = Endangered, V = Vulnerable, NT = Near Threatened, C = Least Concern, SL = Special Least Concern, - = Not Listed.*

Listed migratory species (not listed above)

Scientific name	Common name	EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence (on-site)
Migratory marine birds							
Apus pacificus	Fork-tailed Swift	678	This species is almost exclusively aerial and mostly occur over inland plains but sometimes above foothills or in coastal areas.		No suitable habitat to support this species occurs on-site.	Low	Unlikely
Migratory terrestrial species							
Cuculus optatus	Oriental Cuckoo	86651	Non-breeding habitat only: monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habitat types		No suitable habitat to support this species occurs on-site.	Low	Unlikely
Monarcha melanopsis	Black-faced Monarch	609	The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine forests, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and occasionally cool temperate rainforest.		No suitable habitat to support this species occurs on-site.	Low	Unlikely
Motacilla flava	Yellow Wagtail	644	This species occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra.		No suitable habitat to support this species occurs on-site.	Low	Unlikely

Scientific name	Common name	EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence (on-site)
Myiagra cyanoleuca	Satin Flycatcher	612	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt dominated forests and taller woodlands, and on migration occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.		No suitable habitat to support this species occurs on-site. Records of the species do not occur within 5 km of the site. The species was not recorded on site during survey works.	Low	Unlikely
Rhipidura rufifrons	Rufous Fantail	592	The Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by Eucalypts such as *Eucalyptus microcorys*, *Eucalyptus pilularis*, *Eucalyptus resiniferia* and a number of other Eucalyptus species.		Records of the species do not occur within 5 km of the site. The species was not recorded on site during survey works.	Low	Low
Symposiachrus trivirgatus	Spectacled Monarch	610	The Spectacled Monarchs natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. Its preference is for thick understorey areas.		No suitable habitat to support this species occurs on-site.	Low	Unlikely
Migratory wetland species							
Actitis hypoleucos	Common Sandpiper	59309	The Common Sandpiper utilises a wide range of coastal wetlands and some inland wetlands, including estuaries and deltas of streams, banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and clay pans, and occasionally piers and jetties. They are mostly found in shallow water, around muddy margins or rocky shores and sometimes in muddy areas littered with rocks or		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely

Scientific name	Common name	EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence (on-site)
			snags. The species commonly utilises mangroves for foraging and roosting but is rarely seen on mudflats.				
Calidris acuminata	Sharp-tailed Sandpiper	874	In Australia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh, and beach cast algae / seaweed or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. They also occur in salt works and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves.		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely
Calidris melanotos	Pectoral Sandpiper	858	The Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Occasionally found further inland.		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely
Gallinago hardwickii	Latham's Snipe	863	Latham's Snipe occurs in permanent and ephemeral wetlands. They usually inhabit open, freshwater wetlands with low, dense vegetation.		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely

Scientific name	Common name	EPBC code	Habitat and Distribution	Microhabitat keywords	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence (on-site)
Tringa nebularia	Common Greenshank	832	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. The species is known to forage at the edges of wetlands in soft mud or mudflats.		No suitable foraging or breeding habitat occurs on-site.	Unlikely	Unlikely

Appendix D

Flora and Fauna Species Lists

Flora species list (Native and Introduced)

Scientific Name	**Common Name**
NATIVE	
Acacia concurrens	Black Wattle
Acacia disparrima	Hickory Wattle
Acacia fimbriata	Brisbane Wattle
Acacia leiocalyx	Early Black Wattle
Allocasuarina littoralis	Black She-oak
Alphitonia excelsa	Soap Tree
Angophora leiocarpa	Smooth-barked Apple
Angophora subvelutina	Broad-leaved Apple
Casuarina cunninghamiana	River She-oak
Chrysocephalum apiculatum	Yellow Buttons
Corymbia citriodora	Spotted Gum
Corymbia intermedia	Pink Bloodwood
Corymbia tessellaris	Moreton Bay Ash
Cryptocarya gaucescens	Jackwood
Cymbopogon refractus	Barbed Wire Grass
Cyperus difformis	Dirty dora
Cyperus gracilis	Slender Sedge
Entolasia stricta	Wiry Panic
Eragrostis brownii	Brown's Lovegrass
Eucalyptus crebra	Narrow-leaved Ironbark
Eucalyptus propinqua	Grey Gum
Eucalyptus siderophloia	Grey Ironbark
Eucalyptus tereticornis	Forest Red Gum
Eustrephus latifolius	Wombat Berry
Ficus rubignosa	Rock Fig
Glochidion ferdinandi	Cheese Tree
Goodenia rotundifolia	Star Goodenia
Grevillea robusta	Silky Oak
Imperata cylindrica	Blady Grass
Jacksonia scoparia	Dogwood
Juncus usitatus	Common Rush

Scientific Name	**Common Name**
Leersia hexandra	Swamp Rice Grass
Lepidosperma laterale	Variable Swordsedge
Leptospermum polygalifolium	Wild May
Lobelia purpurascens	White Root
Lobelia quadrangularis	Lawn Lobelia
Lomandra hystrix	Green Mat-rush
Lomandra longifolia	Long-leaved Matrush
Lomandra multiflora	Many Flowered Mat Rush
Lophostemon suaveolens	Swamp Box
Melaleuca quinquenervia	Broad-leaved Paperbark
Melaleuca saligna	White Bottlebrush
Melaleuca viminalis	Weeping Bottlebrush
Mitrasacme polymorpha	Swamp Mitrewort
Ottochloa gracillima	Graceful Grass
Parsonsia straminea	Monkey Rope
Petalostigma pubescens	Quinine Bush
Philydrum lanuginosum	Woolly Frogmouth
Pimelea linifolia	Rice Flower
Pteridium esculentum	Bracken Fern
Pultenaea villosa	Hairy Pea Bush
Stephania joponica	Tape Vine
Syzygium smithii	Common Lilly Pilly
Taraxacum officinale	Common Dandelion
Themeda triandra	Kangaroo Grass
Trema tomentosa	Poison Peach
Typha orientalis	Broad-leaved Cumbungi
Xyris complanata	Hat Pins
EXOTIC/WEED	
Ageratum houstonianum	Blue Billygoat Weed
Ambrosia artemisiifolia	Annual Ragweed
Baccharis halimifolia	Groundsel
Bidens pilosa	Cobbler's Pegs
Chloris gayana	Rhodes Grass

Scientific Name	**Common Name**
Cyperus polystachyos	Bunchy Sedge
Dianella nigra	Ink Berry
Florida trema	Nettletree
Gladiolus dalenii	African Parrot Gladiola
Gomphocarpus physocarpus	Balloon Cotton Bush
Heteropanax fragrans	Fragrant aralia
Lantana camara	Lantana
Lantana montevidensis	Creeping Lantana
Ludwigia peruviana	Ludwigia
Megathyrsus maximus	Guinea Grass
Melinis repens	Red Natal Grass
Onopordum acanthium	Scotch Thistle
Paspalum dilatatum	Paspalum
Paspalum mandiocanum	Broad-leaved Paspalum
Passiflora suberosa	Corky Passion Vine
Pinus elliottii	Slash Pine
Polystichum munitum	Western Sword Fern
Rubus anglocandicans	Blackberry
Senecio madagascariensis	Fireweed
Senna pendula	Easter Cassia
Setaria sphacelata	South African Pigeon Grass
Sida rhombifolia	Common Sida
Solanum chrysotrichum	Giant Devil's Fig
Solanum mauritianum	Wild Tobacco
Verbena bonariensis	Purple-top Verbena

Fauna species list (Native and introduced)

Scientific Name	Common Name	Native / Introduced
BIRDS		
Alectura lathami	Australian Brush-turkey	Native
Centropus phasianinus	Pheasant cuckoo	Native
Chalcophaps indica	Common Emerald Dove	Introduced
Corvus orru	Torresian Crow	Native
Coturnix ypsilophora	Brown Quail	Native
Dacelo novaeguineae	Laughing Kookaburra	Native
Egretta novaehollandiae	White-faced Heron	Native
Eopsaltria australis	Eastern Yellow Robin	Native
Eudynamys orientalis	Eastern Koel	Native
Geopelia humeralis	Bar-shouldered Dove	Native
Lichenostomus chrysops	Yellow-faced Honeyeater	Native
Malurus cyaneus	Superb Fairy-wren	Native
Malurus melanocephalus	Red-backed Fairy Wren	Native
Meliphaga lewinii	Lewin's Honeyeater	Native
Neochmia temporalis	Red-browed Finch	Native
Oriolus sagittatus	Olive-backed oriole	Native
Pachycephala rufiventris	Rufous Whistler	Native
Phaps chalcoptera	Common Bronzewing	Native
Philemon corniculatus	Noisy Friarbird	Native
Psophodes olivaceus	Eastern Whipbird	Native
Rhipidura leucophrys	Willie Wagtail	Native
Scythrops novaehollandiae	Channel-billed Cuckoo	Native
Colluricincla harmonica	Grey Shrike-thrush	Native
MAMMALS		
Canis lupus familiaris	Wild dog	Introduced
Macropus giganteus	Eastern Grey Kangaroo	Native
Macropus rufogriseus	Red-necked Wallaby	Native
Mus musculus	House Mouse	Introduced
Rattus fuscipes	Bush Rat	Native
Sus scrofa	Feral Pig	Introduced
REPTILES		

Scientific Name	Common Name	Native / Introduced
Cryptoblepharus pulcher	Elegant Snake Eyed Skink	Native
Cryptoblepharus virgatus	Wall Skink	Native
Diporiphora australis	Tommy Roundhead	Native
Intellagama lesueurii	Australian Water Dragon	Native
Pseudechis porphyriacus	Red-bellied Black Snake	Native
Varanus varius	Lace Monitor	Native
AMPHIBIANS		
Litoria fallax	Eastern Sedge Frog	Native
Platyplectrum ornatum	Ornate Burrowing Frog	Native
MARSUPIAL		
Isoodon macrourus	Northern Brown Bandicoot	Native
Phascogale tapoatafa	Brush-tailed Phascogale	Native
Trichosurus vulpecula	Common Brushtail Possum	Native

Appendix E

SAT survey results

SAT 1

Tree #	Species	DBH	Scats (Y/N)
1	*Angophora leiocarpa*	450	N
2	*Angophora leiocarpa*	300	N
3	*Lophostemon suaveolens*	130	N
4	*Lophostemon suaveolens*	240	N
5	*Lophostemon suaveolens*	250	N
6	*Lophostemon suaveolens*	220	N
7	*Lophostemon suaveolens*	210	N
8	*Angophora leiocarpa*	330	N
9	*Angophora leiocarpa*	420	N
10	*Eucalyptus propinqua*	230	N
11	*Angophora leiocarpa*	280	N
12	*Acacia disparrima*	120	N
13	*Eucalyptus tereticornis*	440	N
14	*Angophora leiocarpa*	160	N
15	*Corymbia tessellaris*	260	N
16	*Lophostemon suaveolens*	140	N
17	*Lophostemon suaveolens*	150	N
18	*Lophostemon suaveolens*	160	N
19	*Lophostemon suaveolens*	160	N
20	*Lophostemon suaveolens*	250	N
21	*Angophora leiocarpa*	270	N
22	*Angophora leiocarpa*	470	N
23	*Angophora leiocarpa*	360	N
24	*Acacia disparrima*	180	N
25	*Acacia leiocalyx*	130	N
26	*Eucalyptus tereticornis*	470	N
27	*Angophora leiocarpa*	300	N
28	*Lophostemon suaveolens*	240	N
29	*Angophora leiocarpa*	410	N
30	*Eucalyptus tereticornis*	250	N

SAT 2

Tree #	Species	DBH	Scats (Y/N)
1	*Angophora leiocarpa*	460	N
2	*Alphitonia excelsa*	100	N
3	*Alphitonia excelsa*	150	N
4	*Eucalyptus tereticornis*	970	N
5	*Lophostemon suaveolens*	250	N
6	*Corymbia tessellaris*	170	N
7	*Corymbia tessellaris*	120	N
8	*Eucalyptus propinqua*	340	N
9	*Corymbia tessellaris*	440	N
10	*Lophostemon suaveolens*	180	N
11	*Lophostemon suaveolens*	250	N
12	*Lophostemon suaveolens*	230	N
13	*Eucalyptus tereticornis*	470	N
14	*Eucalyptus tereticornis*	390	N
15	*Corymbia intermedia*	170	N
16	*Eucalyptus tereticornis*	370	N
17	*Corymbia intermedia*	240	N
18	*Eucalyptus tereticornis*	450	N
19	*Lophostemon suaveolens*	230	N
20	*Corymbia intermedia*	220	N
21	*Eucalyptus tereticornis*	260	N
22	*Lophostemon suaveolens*	180	N
23	*Lophostemon suaveolens*	220	N
24	*Lophostemon suaveolens*	180	N
25	*Lophostemon suaveolens*	120	N
26	*Lophostemon suaveolens*	650	N
27	*Eucalyptus tereticornis*	600	N
28	*Eucalyptus tereticornis*	500	N
29	*Lophostemon suaveolens*	170	N
30	*Lophostemon suaveolens*	230	N

SAT 3

Tree #	Species	DBH	Scats (Y/N)
1	*Corymbia citriodora*	200	N
2	*Corymbia citriodora*	200	N
3	*Acacia disparrima*	110	N
4	*Allocasuarina littoralis*	220	N
5	*Alphitonia excelsa*	140	N
6	*Allocasuarina littoralis*	110	N
7	*Allocasuarina littoralis*	120	N
8	*Allocasuarina littoralis*	100	N
9	*Allocasuarina littoralis*	110	N
10	*Corymbia citriodora*	100	N
11	*Corymbia intermedia*	120	N
12	*Allocasuarina littoralis*	150	N
13	*Corymbia citriodora*	470	N
14	*Eucalyptus crebra*	200	N
15	*Eucalyptus tereticornis*	450	N
16	*Eucalyptus tereticornis*	430	N
17	*Corymbia citriodora*	250	N
18	*Corymbia intermedia*	180	N
19	*Lophostemon suaveolens*	190	N
20	*Allocasuarina littoralis*	170	N
21	*Allocasuarina littoralis*	100	N
22	*Corymbia citriodora*	120	N
23	*Allocasuarina littoralis*	130	N
24	*Angophora leiocarpa*	350	N
25	*Lophostemon suaveolens*	630	N
26	*Lophostemon suaveolens*	150	N
27	*Eucalyptus tereticornis*	200	N
28	*Lophostemon suaveolens*	110	N
29	*Eucalyptus tereticornis*	180	N
30	*Corymbia citriodora*	120	N

Appendix F

Significant Impact Guideline 1.1 Assessment

Significant Impact Assessment

The Significant Impact Guidelines 1.1 provides specific definitions for '*a population of a species'* and '*habitat critical to the survival of a species or ecological community*'. This definition is a key consideration when conducting significant impact assessments for a threatened species or ecological community listed under the EPBC Act. The definitions are presented below.

Population of a Species

A 'population of a species' is defined by the Significant Impact Guidelines 1.1 as:
"An occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- *A geographically distinct regional population, or collection of local populations*
- *A population, or collection of local populations, that occurs within a particular bioregion.*

Habitat Critical to the Survival of the Species

The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species'*
"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- *For activities such as foraging, breeding, roosting or dispersal*
- *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)*
- *To maintain genetic diversity and long-term evolutionary development*
- *For the reintroduction of populations or recovery of the species or ecological community.*

Such habitat may be, but is not limited to:

- *Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community*
- *Habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.*

Significant Impact Assessment

For potential impacts to threatened species and ecological communities of the proposed New Beith Road upgrade, an assessment against the Significant Impact Guidelines 1.1 has been conducted for one (1) threatened ecological community (TEC) and six (6) threatened fauna species identified as having a moderate likelihood of occurring onsite or having potential foraging habitat. These include:

- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and Southeast Queensland Bioregions (SEFFW) TEC
- *Anthochaera phrygia* (Regent Honeyeater)
- *Calyptorhynchus lathami lathami* (South-eastern Glossy Black-cockatoo)
- *Lathamus discolor* (Swift Parrot)

- *Petauroides volans* (Greater Glider)
- *Phascolarctos cinereus* (Koala)
- *Pteropus poliocephalus* (Grey-headed Flying-fox)

The following sections outline the assessment for each threatened species and ecological community.

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and Southeast Queensland Bioregions TEC

Assessment against the Significant Impact Guidelines 1.1 for the SEFFW TEC

The SEFFW TEC is listed as Endangered under the EPBC Act, effective as of 5th October 2022. Therefore, any assessed impact of a proposed action on-site would trigger the proponent to make a further subsequent decision regarding whether or not to refer the action.

As detailed in **Section 4.3.2**, the SEFFW TEC was ground-truthed within the waterway corridors, intersecting part of the referral area (refer **Plan 3**). Species identified within the SEFFW TEC's were reflective of the Of Concern RE12.3.11 RE12.3.16 – see **Section 4.3.2** for flora species and indicators of the SEFFW TEC observed within the proposed action area. To determine whether the proposed action is likely to have a significant impact on the SEFFW TEC, an assessment against the *EPBC Significant Impact Guidelines 1.1* is presented below.

SEFF TEC Significant Impact Assessment

Conservation Status – The *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* (SEFFW) is listed as Endangered under the EPBC Act.

Description – The SEFFW TEC varies from a tall open forest to woodland, dominated by eucalypts and/or other myrtaceous trees specifically from the *Angophora*, *Corymbia*, *Lophostemon* and *Syncarpia* genera which occurs on alluvial landforms.

Distribution, Location and Physical Environment – The SEFFW TEC occurs in the New South Wales North Coast (NNC) and South Eastern Queensland (SEQ) IBRA bioregions and on Curtis Island in the Brigalow Belt North (BBN) IBRA Bioregion. This encompasses an area from just north of Newcastle, New South Wales (around Raymond Terrace) in the south, to just north of Gladstone in Queensland.

The ecological community is found on alluvial landforms, including floodplains, the riparian zones of parent rivers and other order tributaries, alluvial flats, floodplain/alluvial terraces and periodically flooded depressions. It generally occurs below 50 m above sea-level (ASL), although it can occur up to 250 m ASL.

Threats – Threats to this TEC include clearing, hydrological changes, fragmentation legacies, weeds, climate change, fire regimes that cause declines in biodiversity, invasive fauna, disturbance from urbanisation and recreational activity, diseases and pathogens, livestock grazing, vegetation and firewood removal and urban heat effects.

To determine whether the proposed action is likely to have a significant impact on the SEFFW TEC, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 8** below.

Table 8 - EPBC Significant impact criteria for critically endangered and endangered ecological communities – Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland Bioregions

Significant Impact Criteria		Assessment	Impact
An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:			
1.	**Reduce the extent of an ecological community**	The potential SEFFW TEC was ground-truthed in association with Flagstone Creek and a tributary of this creek to the north. Part of the referral area intersects vegetation described as the RE 12.3.11 / 12.3.7 which are Regional Ecosystems representative of the SEFFW TEC. The potential TEC exists as a thin remnant corridor through Flagstone Creek. In its existing state, vegetation is affected by edge effects on both side as a result of historical clearing and cattle grazing, along with direct effects of the existing road reserve including weed incursion, logging and vehicle damage. Resultantly, weed invasion was observed along the edges of the community where the existing road reserve intersects. The proposed action will result in the impact of approximately 1.23 ha of the potential SEFFW TEC due to the construction of a road crossing over Flagstone Creek. It is noted, while the RE12.3.11 / 12.3.7 is mapped through the entire works extent and buffer area, the mapping is considered incorrect as there is an existing cleared track through the centre of the works extent. Although the proposed action is considered to result in a minimal reduction of the potential TEC, it is considered negligible impacts will occur due to the existing condition of the vegetation.	**A significant impact is not likely**
2.	**Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines**	The potential SEFFW TEC is proposed to be impacted as a result of the development, where the proposed development design is considered to result in negligible impacts to the overall functionality of the potential TEC. In its existing state, the potential SEFFW TEC is restricted to two narrow lineal strips associated Flagstone Creek, where edge effects are evident in the form of weed invasion and ongoing impacts resulting from illegal vehicle use, rubbish dumping and logging. The area proposed to be impacted by the construction of a road crossing is approximately 1.23 ha and is highly modified due to historical disturbance within abutting landscape areas (e.g. agricultural uses and land clearing) and impacts within the works extent due to the cleared track. The remainder of the potential SEFFW TEC adjacent to the referral area is proposed to be retained as a result of the action, abutting buffer areas where rehabilitation efforts will be focused following development works will result in greater protection of ecological processes associated with the SEFFW TEC (*i.e.* faunal habitat and connectivity opportunity to surrounding remnant vegetation). Exacerbated fragmentation of the potential SEFFW TEC is not proposed as a result of this action, nor will this action result in the isolation of any sections of the currently intact TEC.	**A significant impact is not likely**
3.	**Adversely affect habitat critical to the survival of an ecological community**	The potential SEFFW TEC was ground-truthed in association with Flagstone Creek and a tributary of this creek to the north. Part of the referral area intersects vegetation described as the RE 12.3.11 / 12.3.7 which are regional ecosystems representative of the SEFFW TEC. The potential TEC exists as a thin remnant corridor through Flagstone Creek. In its existing state, vegetation is affected by edge effects on both side as a result of historical clearing and cattle grazing, along with direct effects of the existing road reserve including weed incursion, logging and vehicle damage. Resultantly, weed invasion was observed along the edges of the community where the existing road reserve intersects as a result of ongoing edge effects – where increased light exposure and the	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	cleared track has facilitated weed growth. Approximately 1.23 ha of the potential SEFFW TEC is proposed to be impacted as a result of the proposed action, although it is noted part of this area is already cleared due to the existing track through the centre of the works extent. Due to surrounding disturbance and the existing condition of the subject vegetation, it is unlikely that the proposed action will adversely affect habitat critical to the survival of SEFFW TEC as a whole.	
4. Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The potential SEFFW TEC was ground-truthed in association with Flagstone Creek and a tributary of this creek to the north. The potential TEC exists as a thin remnant corridor through Flagstone Creek. The existing condition of the TEC is highly modified, where vehicle usage along the existing track was observed, resulting in varied levels of erosion (ranging from moderate to high). An impact of approximately 1.23 ha is proposed as a result of the action to facilitate a road crossing intended to connect proposed development within Greater Flagstone PDA. Due to the narrow width of the potential SEFFW TEC, observable erosion and weed invasion, ecological processes are largely hindered – such as water filtration, significant nutrient cycling and soil stability. Consequently, the proposed action is not anticipated to modify or destroy abiotic factors as best of practice mechanisms and standards will be implemented during works associated with the proposed action. In addition, the proposed action will include the rehabilitation of the potential LRSA TEC and adjacent cleared areas to provide an enhanced buffer to the TEC long-term. It is unlikely that resultant alterations to ecosystem processes and functionality will occur. Existing contours within the SEFFW TEC will remain, minimising the potential for modification of current ecosystem functionality. Hence, the proposed action is unlikely to modify or destroy abiotic factors essential to the potential SEFFW TEC.	**A significant impact is not likely**
5. Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The potential SEFFW TEC was ground-truthed in association with Flagstone Creek and a northern tributary, at the southern extent of the proposed road works extent. During detailed field assessment, the broader indicator regional ecosystem, composite Of Concern RE12.311 / 12.3.7, was observed to meet condition thresholds as discussed in Section 4.3.2 with the exception of species richness. This is anticipated to be a result of surrounding disturbance resulting from historical clearing and the absence of a buffer area to protect original flora characteristics. Weed invasion is predominant with the potential SEFFW TEC, where species including *Lantana camara* (Lantana), *Ageratum houstonianum* (Blue Billygoat Weed), and *Megathyrsus maximus* (Guinea Grass) exist. The impact to approximately 1.23 ha of the potential SEFFW TEC is not considered to result in a substantial change in species composition associated with the TEC. As a result of development, rehabilitation efforts are proposed to remove weed species and rehabilitate the abutting cleared areas. Hence, it is not anticipated that the proposed action will result in substantial changes to species composition nor result in a reduction of species diversity or presence.	**A significant impact is not likely**
6. Cause a substantial reduction in the quality or integrity of an occurrence of an ecological	Fragmentation legacies, weeds, fire regimes that cause declines in biodiversity, invasive fauna, and disturbance from recreational activity, are included within the key threatening processes that are considered relevant to the potential SEFFW TEC DCCEEW (2022). Field survey recorded Feral Pig, Wild Dog and Lantana (*Lantana camara*) within the proposed action boundary, indicating the potential SEFFW TEC on-site is already exposed to harm from	**A significant impact is not likely**

Significant Impact Criteria		Assessment	Impact
	community, including, but not limited to: **– assisting invasive species, that are harmful to the listed ecological community, to become established, or** **– causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community**	invasive species. Lantana is listed as a key damaging weed species that is known to infest this TEC, and should be managed to prevent impacts to the integrity of the potential SEFFW TEC. As a result of the proposed action, pest management mechanisms will be implemented to reduce existing threats. Further, the proposed action is not anticipated to result in an increase of invasive species within the potential SEFFW TEC due to the current existence of invasive species and subsequent rehabilitation efforts within the potential TEC and abutting the lineal strip. Works associated with the proposed action are not anticipated to result in regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the TEC. Best of practice mechanisms and standards will be implemented during works associated with the proposed action to ensure no runoff with the potential to inhibit or kill the growth of species associated with the TEC occur. Further, the retention and rehabilitation of the TEC area post-works will enhance water filtration processes and support ecosystem health and functionality.	
7.	**Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat**	Field survey recorded Feral Pig, Wild Dog and Lantana (*Lantana camara*) within the proposed action boundary, indicating the potential SEFFW TEC on-site is already exposed to harm from invasive species. Lantana is listed as a key damaging weed species that is known to infest this TEC, and should be managed to prevent impacts to the integrity of the potential SEFFW TEC. As a result of the proposed action, pest management mechanisms will be implemented to reduce existing threats. Further, the proposed action is not anticipated to result in an increase of invasive species within the potential SEFFW TEC due to the current existence of invasive species and subsequent rehabilitation efforts within the potential TEC and abutting the lineal strip.	**A significant impact is not likely**
8.	**Interfere with the recovery of an ecological community.**	The potential SEFFW TEC was ground-truthed to be largely restricted to Flagstone Creek as two narrow lineal strips. As a result of the proposed action, the regional ecosystem associated with the TEC, Of Concern composite RE12.3.11 / 12.3.7, is proposed to be mostly retained. A disturbed part of the TEC is proposed to be impacted as a result of the construction of a road crossing to connect the development within Greater Flagstone PDA. A total of approximately 1.23 ha is proposed to be impacted, however, post-development rehabilitation works will occur to remove weed species adjoining the impact area. Hence, the proposed action is not anticipated to interfere with the recovery of the LRSA TEC.	**A significant impact is not likely**

Regent Honeyeater (*Anthochaera phrygia*)

Assessment against the Significant Impact Guidelines 1.1 for the Regent Honeyeater

The Regent Honeyeater is listed as Critically Endangered under the EPBC Act effective from 8th July 2015. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Regent Honeyeater may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

Regent Honeyeater Significant Impact Assessment

Conservation Status – The Regent Honeyeater is listed as Critically Endangered under the EPBC Act.

Description – Regent Honeyeaters (*Anthochaera phrygia*) are black and yellow birds, endemic to mainland south-eastern Australia.

Distribution – Regent Honeyeaters are endemic to mainland Australia and has a patchy distribution which extends from south-east Queensland, through New South Wales (NSW) and the Australian Capital Territory (ACT), to central Victoria. Records are widely distributed across its range, but it is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas: three in NSW and one in Victoria.

Threats – Threats to this TEC include clearing, hydrological changes, fragmentation legacies, weeds, climate change, fire regimes that cause declines in biodiversity, invasive fauna, disturbance from urbanisation and recreational activity, diseases and pathogens, livestock grazing, vegetation and firewood removal and urban heat effects.

To determine whether the proposed action is likely to have a significant impact on the Regent Honeyeater, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 9** below.

Table 9 - EPBC Significant impact criteria for critically endangered and endangered species – Regent Honeyeater

Significant Impact Criteria	Assessment	Impact
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of a population	The New Beith road upgrade comprises a works extent of 17.12 ha and 3.2 km in length, with a referral area inclusive of a 20 m buffer totaling 30.16 ha. The vegetation across the site comprises cleared road reserve, scattered hollow-bearing mature eucalypt sp., *Acacia sp.* dominated understorey regrowth, *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas (**Plan 3**). The site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from illegal vehicle use, rubbish dumping and logging. The site is not dominated by box and ironbark eucalypts which is the preferred forest type of this species, although *Eucalyptus siderophloia* (Grey Ironbark) was recorded during field surveys. Mistletoe species were observed within the referral area but predominately associated with *Alphitonia excelsa* (Soap Tree) and were sparse. No evidence of the Regent Honeyeater was observed during detailed field surveys. Bushland west of the site shows a record in 2019 of the Regent Honeyeater within 5 km south-west of the referral area according to Atlas of Living Australia (ALA). It is unlikely a population of this species is using vegetation onsite for breeding or roosting, as there is substantially higher quality available habitat to the west of the road reserve. It is considered highly unlikely that the removal of vegetation within the referral area would affect the viability or size of any Regent Honeyeater populations in the area.	**A significant impact is not likely**
2. Reduce the area of occupancy of the species	The preferred Box-Ironbark Eucalypt woodland habitat for Regent Honeyeaters was not present onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by Regent Honeyeaters. No evidence of Regent Honeyeater activity was recorded on-site. Surrounding impact from earmarked development is likely to restrict the extent of available habitat onsite and connectivity to the referral area will be largely isolated from other habitat (**Plan 4**). Given the higher quality habitat to the west of the referral area and significant disturbance onsite from vehicle usage, it is unlikely the species is utilising vegetation onsite for breeding or roosting. Therefore, due to the above considerations combined it is anticipated that the removal of vegetation on-site is not considered to reduce the area of occupancy for Regent Honeyeaters.	**A significant impact is not likely**
3. Fragment an existing population into two or more populations	The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment potential habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by the species. Given the higher quality intact	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	bushland vegetation to the west, it is likely the species would preferentially forage in these areas rather than the highly disturbed and modified road reserve. Online databases show a record of Regent Honeyeater within 5 km south-west of the referral area from 2019 within intact bushland vegetation. As the referral area is surrounded by land that will be impacted by future residential development and lack of evidence of the species onsite, the removal of the potential habitat is unlikely to fragment any existing populations (**Plan 1**).	
4. Adversely affect habitat critical to the survival of a species	The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'. *"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:* ▪ *For activities such as foraging, breeding, roosting or dispersal* ▪ *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)* ▪ *To maintain genetic diversity and long-term evolutionary development* ▪ *For the reintroduction of populations or recovery of the species or ecological community.* Responses to the definition of *habitat critical to the survival of a species'* follows below: • The referral site shows no evidence of current Regent Honeyeater usage and will not be accessible for Regent Honeyeater to use for foraging, breeding, roosting or dispersing as a result of the development within the Greater Flagstone Development Area existing fragmenting factors on all sides. • The vegetation on the referral site is not required for the long-term maintenance of the species as there is higher quality retained bushland vegetation to the west of the referral area which is likely to be preferentially selected by the species. • Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by the Regent Honeyeater. The referral area is therefore unlikely to contribute to genetic diversity of the species. • The referral area will be isolated from other habitat following the development of surrounding residential areas. The referral area forms part of the Flagstone City development area which will consist of future residential areas. In addition, significant current threats exist within and surrounding the referral area including wild dogs, vehicle use, weed encroachment, illegal offroad vehicle use and the train line further east. The referral site is not considered suitable for the reintroduction of Regent Honeyeater nor will it be able to aid in the recovery of the species. The referral site is, therefore, not considered to be critical to the survival of the species.	**A significant impact is not likely**
5. Disrupt the breeding cycle of a population	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by the species. It is not considered that the proposed action would disrupt the breeding cycle of a population of Regent Honeyeaters as there is a lack of indication	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	of breeding population on-site. Regent Honeyeater breeding areas are known to occur in NSW and Victoria, therefore the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population.	
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The referral site is subject to significant disturbance in the form of vehicle use and damage, logging, rubbish dumping, invasive fauna species and weed incursion where habitat throughout the site is considered low quality in some areas. The preferred Box-Ironbark Eucalypt woodland habitat for Regent Honeyeaters was not present onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by Regent Honeyeaters. It is unlikely this area provides suitable habitat for the species, given the presence of intact higher quality vegetation in the broader landscape, in particular in bushland to the west of the site. Regent Honeyeaters have been recorded south-west of the site but as the referral area does not show evidence of Regent Honeyeater utilising the site, it is not considered that the proposed action will impact the habitat on-site to the extent that the species is likely to decline.	**A significant impact is not likely**
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The road reserve currently contains species including Wild Dog, Feral Pig and *Lantana camara* (Lantana) that degrade the habitat quality of the Regent Honeyeater. Given the existing threats present onsite, the road upgrade is unlikely to cause further impact from invasive species. However, measures will be put in place during construction for the road upgrade in order to minimize the introduction of invasive species that are harmful to the Regent Honeyeater or Regent Honeyeater habitat.	**A significant impact is not likely**
8. Introduce disease that may cause the species to decline, or	The proposed action is unlikely to introduce disease that may cause the species to decline. The National Recovery Plan for the Regent Honeyeater identifies disease as an inherent issue related to small population size, however, does not identify diseases of the species as a threat other than through careful management of release programs. The preferred Box-Ironbark Eucalypt woodland habitat for Regent Honeyeaters was not present onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by Regent Honeyeaters.	**A significant impact is not likely**
9. Interfere substantially with the recovery of the species.	Detailed studies did not detect any evidence of Regent Honeyeaters within the referral area, suggesting the vegetation on-site is not utilised by the species. Regent Honeyeater records are evident in vegetation to the south-west of the referral area which are to be retained. However, vegetation directly surrounding the road reserve is to be largely cleared as part of development within the Greater Flagstone PDA. Once vegetation within these areas are cleared, the referral area will be isolated from other potential habitat (**Plan 1**). The referral site is not suitable for the reintroduction of Regent Honeyeater nor will it be able to aid in the recovery of the species. Refer below for an assessment against the EPBC Act Recovery Plan and Conservation Advice for the Regent Honeyeater.	**A significant impact is not likely**

The EPBC Act National Recovery Plan for the Regent Honeyeater was published in April 2016. This recovery plan for the listed Regent Honeyeater is a revision of the 1999-2003 Regent Honeyeater Recovery Plan. It has been developed with relevant State and Territory Governments to provide an overarching national conservation framework for the listed Regent Honeyeater that aligns with local, state and territory government plans, programs and strategies. However, it does not replace Local, State and Territory Government plans, programs and strategies.

The review recommended that future recovery actions focus on a landscape approach to habitat protection and regeneration, coupled with ongoing releases of captive birds to bolster the wild population until such time as the wild population became self-sustaining (and while other threat mitigation such as habitat restoration took effect).

Two (2) key objectives of the National Recovery Plan are provided below with responses relevant to the proposed action:

1. **Reverse the long-term population trend of decline and increase the numbers of regent honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years.**

Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by the species. It is not considered that the proposed action would disrupt the breeding cycle of a population of Regent Honeyeaters as there is a lack of indication of breeding population on-site. Regent Honeyeater breeding areas are known to occur in NSW and Victoria, therefore the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population.

2. **Enhance the condition of habitat across the regent honeyeater range to maximise survival and reproductive success, and provide refugia during periods of extreme environmental fluctuation.**

The proposed action will result in direct impact to 17.12 ha and indirect impact to a total of 30.16 ha which includes a 20 m buffer area. The referral site is subject to significant disturbance in the form of vehicle use and damage, logging, rubbish dumping, invasive fauna species, weed incursion and clearing where habitat throughout the site is considered low quality in some areas. The preferred Box-Ironbark Eucalypt woodland habitat for Regent Honeyeaters was not present onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Regent Honeyeater within the referral area, suggesting the vegetation on-site is not utilised by Regent Honeyeaters. It is unlikely this area provides suitable habitat for the species, given the presence of intact higher quality vegetation in the broader landscape, in particular in bushland to the west of the site. Regent Honeyeaters have been recorded south-west of the site but as the referral area does not show evidence of Regent Honeyeater utilising the site. Vegetation directly surrounding the referral area is likely to be fragmented by the earmarked development within the Greater Flagstone PDA.

South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*)

Assessment against the Significant Impact Guidelines 1.1 for the South-eastern Glossy Black-cockatoo

The Glossy Black-cockatoo is listed as Vulnerable under the EPBC Act effective from 10th August 2022. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Glossy Black-cockatoo may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

South-eastern Glossy Black-cockatoo Significant Impact Assessment

Conservation Status – The South-eastern Glossy Black-cockatoo is listed as Vulnerable under the EPBC Act.

Description – Glossy black cockatoos (*Calyptorhynchus lathami lathami*) are the smallest of the black cockatoos (Calyptorhynchus and Zanda spp.), with a body length of around 48 cm and weight of 420 g. Plumage is mostly dull black, with a blackish-brown head, an inconspicuous crest and a broad bulbous bill.

Distribution – The Glossy Black-cockatoo is distributed from Mitchell, Queensland through eastern New South Wales to East Gippsland, Victoria. Their distribution is continuous through the forested parts of the Great Dividing Range but becomes more scattered inland, to as far west as the Riverina in New South Wales.

Habitat – The Glossy Black Cockatoo prefers woodland areas dominated by she-oak *Allocasuarina*, or open sclerophyll forests and woodlands with a stratum of *Allocasuarina* beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed *Allocasaurina*, *Casuarina*, cypress *Callitris* and brigalow *Acacia harpophylla* woodland assemblages. In SEQ west of the Great Dividing Range, they have been observed feeding in remnant belah Casuarina cristata and bulloak *Allocasuarina luehmannii* forests. This species is also known to utilise appropriate remnant woodlands, and individual or small pockets of *Allocasuarina* and *Casuarina* feed trees in urban areas.

Threats – Habitat loss, degradation and fragmentation are the main threats to Glossy Black-cockatoo at present. Additional threats include wildfires, inappropriate fire management, climate change, invasive weeds, disease, predation and competition.

To determine whether the proposed action is likely to have a significant impact on the Glossy Black-cockatoo, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 10** below.

Table 10 - EPBC Significant impact criteria for vulnerable species – South-eastern Glossy Black-cockatoo

Significant Impact Criteria	Assessment	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of an important population of a species	The New Beith road upgrade comprises a works extent of 17.12 ha and 3.2 km in length, with a referral area inclusive of a 20 m buffer totaling 30.16 ha. The vegetation across the site comprises cleared road reserve, scattered hollow-bearing mature *Eucalypt sp.*, *Acacia sp.* dominated understorey regrowth, *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas (**Plan 3**). The site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from illegal vehicle use, rubbish dumping and logging. Field surveys located scattered isolated black sheoak (*A. littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. No evidence of the Glossy Black-cockatoo was observed during detailed field surveys and searaches of potential habitat areas did not identify feeding "orts" within *Allocasuarina littoralis* stands. ALA records show the species recorded in 2021 approximately 8 km west of the road reserve within intact bushland vegetation. There is only one (1) record of the species on BioMaps since 2013 within a 5 km radius of the site. It is unlikely a population of this species is using vegetation onsite for breeding or roosting, as there is substantially higher quality available habitat to the west of the road reserve. It is considered highly unlikely that the removal of vegetation within the referral area would affect the viability or size of any Glossy Black-cockatoo populations in the area.	**A significant impact is not likely**
2. Reduce the area of occupancy of an important population	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by Glossy Black-cockatoo. No evidence of Glossy Black-cockatoo activity was recorded on-site in the form of feeding "orts" within *Allocasuarina littoralis* stands. Surrounding impact from earmarked development is likely to restrict the extent of available habitat onsite and connectivity to the referral area will be largely isolated from other habitat (**Plan 4**). Given the higher quality habitat to the west of the referral area and significant disturbance onsite from vehicle usage, it is unlikely the species is utilising vegetation onsite for breeding or roosting. Therefore, due to the above considerations combined it is anticipated that the removal of vegetation on-site is not considered to reduce the area of occupancy for the Glossy Black-cockatoo.	**A significant impact is not likely**
3. Fragment an existing important population into two or more populations	The Glossy Black-cockatoo prefers woodland areas dominated by she-oak *Allocasuarina littoralis,* or open sclerophyll forests and woodlands with a stratum of *Allocasuarina* beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed *Allocasuarina, Casuarina*, cypress *Callitris* and brigalow *Acacia harpophylla* woodland assemblages. Potential habitat for the Glossy Black-cockatoo as open sclerophyll forests and woodlands with a stratum of *Allocasuarina* sp. beneath *Eucalyptus*, *Corymbia* or *Angophora*, occur within and adjacent to the New Beith Road reserve, within Category B (remnant) vegetation. However, the site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment potential habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by the species. Given the higher quality intact bushland vegetation to the west, it is likely the species would preferentially forage in these areas rather than the highly disturbed and modified road reserve. ALA records show the species recorded in 2021 approximately 8 km west of the road reserve within intact bushland vegetation. There is only one (1) record of the species on BioMaps since 2013 within a 5 km radius of the site. As the referral area is surrounded by land that will be impacted by future residential development and lack of evidence of the species onsite, removal of the potential habitat is unlikely to fragment any existing populations (**Plan 1**).	
4. Adversely affect habitat critical to the survival of a species	The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'. *"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:* ▪ *For activities such as foraging, breeding, roosting or dispersal* ▪ *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)* ▪ *To maintain genetic diversity and long-term evolutionary development* ▪ *For the reintroduction of populations or recovery of the species or ecological community.* Responses to the definition of *habitat critical to the survival of a species'* follows below: • The referral site shows no evidence of current Glossy Black-cockatoo usage and will not be accessible for Glossy Black-cockatoo to use for foraging, breeding, roosting or dispersing as a result of the development within the Greater Flagstone Development Area existing fragmenting factors on all sides. • The vegetation on the referral site is not required for the long-term maintenance of the species as there is higher quality retained bushland vegetation to the west of the referral area which is likely to be preferentially selected by the species. • Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by the Glossy Black-cockatoo. The referral area is therefore unlikely to contribute to genetic diversity of the species. • The referral area will be isolated from other habitat following the development of surrounding residential areas. The referral area forms part of the Flagstone City development area which will consist of future residential areas. In addition, significant current threats exist within and surrounding the referral area including wild dogs, vehicle use, weed encroachment, illegal offroad vehicle use and the train line further east. The referral site is not	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	considered suitable for the reintroduction of Glossy Black-cockatoo nor will it be able to aid in the recovery of the species. The referral site is, therefore, not considered to be critical to the survival of the species.	
5. Disrupt the breeding cycle of an important population	While there is potential habitat in the form of *Allocasuarina littoralis* stands present within the referral area, detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by the species. It is not considered that the proposed action would disrupt the breeding cycle of a population of Glossy Black-cockatoo as there is a lack of indication of breeding population on-site. Therefore the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population.	**A significant impact is not likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Field surveys located scattered isolated black sheoak (*Allocasuarina littoralis*) in areas of the remnant vegetation adjacent to and within the New Beith Road reserve. In addition, vegetation within the Category X area at the northern extent of the road reserve contains an understorey of *A. littoralis* on the western side. However, the referral site is subject to significant disturbance in the form of vehicle use and damage, logging, rubbish dumping, invasive fauna species and weed incursion where habitat throughout the site is considered low quality in some areas. Weed disturbance is high throughout the *A. littoralis* stands, with *Lantana camara* (Lantana), *Ageratum houstonianum* (Blue Billy Goat), and *Paspalum dilatatum* (Paspalum) dominating the ground and shrub layers. Searches of these habitat areas did not identify any feeding "orts" within *Allocasuarina littoralis* stands characteristic of Glossy Black-cockatoo. Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by Glossy Black-cockatoo. It is unlikely this area provides suitable habitat for the species, given the presence of intact higher quality vegetation in the broader landscape, in particular in bushland to the west of the site. Glossy Black-cockatoo have been recorded west of the site but as the referral area does not show evidence of Glossy Black-cockatoo utilising the site, it is not considered that the proposed action will impact the habitat on-site to the extent that the species is likely to decline.	**A significant impact is not likely**
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The road reserve currently contains species including Wild Dog, Feral Pig and *Lantana camara* (Lantana) that degrade the habitat quality of the Glossy Black-cockatoo. Given the existing threats present onsite, the road upgrade is unlikely to cause further impact from invasive species. However, measures will be put in place during construction for the road upgrade in order to minimize the introduction of invasive species that are harmful to the Glossy Black-cockatoo or Glossy Black-cockatoo habitat.	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
8. Introduce disease that may cause the species to decline, or	The proposed action is unlikely to introduce disease that may cause the species to decline. While field surveys located scattered isolated black sheoak (*Allocasuarina littoralis*) within the referral area, this habitat was considered of low quality and subject to high levels of disturbance. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by Glossy Black-cockatoo.	**A significant impact is not likely**
9. Interfere substantially with the recovery of the species.	Detailed studies did not detect any evidence of Glossy Black-cockatoo within the referral area, suggesting the vegetation on-site is not utilised by the species. Glossy Black-cockatoo records are evident in vegetation to the west of the referral area which are to be retained. However, vegetation directly surrounding the road reserve is to be largely cleared as part of development within the Greater Flagstone PDA. Once vegetation within these areas are cleared, the referral area will be isolated from other potential habitat (**Plan 1**). The referral site is not suitable for the reintroduction of Glossy Black-cockatoo nor will it be able to aid in the recovery of the species.	**A significant impact is not likely**

Swift Parrot (*Lathamus discolor*)

Assessment against the Significant Impact Guidelines 1.1 for the Swift Parrot

The Swift Parrot was listed as Critically Endangered under the EPBC Act effective May 2016. The Federal Significant Impact Guidelines are to be utilised to determine if a significant impact on Swift Parrot may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

Swift Parrot Significant Impact Assessment

Conservation Status – The Swift Parrot is listed as Critically Endangered under the EPBC Act.

Description – Swift Parrot (*Lathamus discolor*) is a species of broad-tailed parrot, found only in south-eastern Australia. It is bright green with red around the bill, throat and forehead. The red on its throat is edged with yellow. Its crown is blue-purple.

Distribution – The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. The species breeds in the north-west of the state between Launceston and Smithton, however, the number of birds involved, and frequency of these breeding events is not well understood. On the mainland, Swift Parrot disperses to forage on flowers and *psyllid* lerps in Eucalyptus species within Victoria and New South Wales. This is predominantly in dry forests and woodlands of the box-ironbark region.

Habitat – Swift Parrot breeding range is largely restricted to the east and south-east coast of Tasmania and closely mirrors the distribution of blue gum (*Eucalyptus globulus*). Swift Parrots breed in tree-hollows in old-growth or other forest with suitable hollows, in relatively close proximity to the main food source, flowering Tasmanian blue gum. Non-breeding birds preferentially feed in inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and spotted gum (*Corymbia maculate*) woodland when in flower, otherwise often in coastal forests from eastern Victorian to the central coast of New South Wales.

Threats – Predation by sugar gliders, habitat loss and alteration, wildfire, collision mortality and competition are identified as the main threats for the Swift parrot. Notably, concerted conservation efforts have more recently focused on mitigating the loss of old growth tree habitat and predation by imported Sugar Gliders in Tasmania through the installation of nest boxes including with nocturnal exclusion mechanisms. Relative to the scarcity of breeding habitat and loss of young to introduced predators in breeding regions, the relative availability of winter foraging habitat across the breadth of mainland Australia is generally considered less of a constraint on Swift Parrot persistence.

To determine whether the proposed action is likely to have a significant impact on the Swift Parrot, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 11** below.

Table 11 - EPBC Significant impact criteria for critically endangered and endangered species – Swift Parrot

Significant Impact Criteria	Assessment	Impact
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of a population	The New Beith road upgrade comprises a works extent of 17.12 ha and 3.2 km in length, with a referral area inclusive of a 20 m buffer totaling 30.16 ha. The vegetation across the site comprises cleared road reserve, scattered hollow-bearing mature *Eucalypt sp*., *Acacia sp*. dominated understorey regrowth, *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas (**Plan 3**). The site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from illegal vehicle use, rubbish dumping and logging. The site is not dominated by preferred breeding habitat tree species, Blue Gum (*Eucalyptus globulus*) and does not contain non-breeding habitat in the form of inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and southern spotted gum (*Corymbia maculata*) woodland. No evidence of the Swift Parrot was observed during detailed field surveys and spotlighting events. Online records show no evidence of the Swift Parrot within 5 km of the site. It is unlikely a population of this species is using vegetation onsite for breeding or roosting, as there is substantially higher quality available habitat to the west of the road reserve and preferred tree species are not present onsite. It is considered highly unlikely that the removal of vegetation within the referral area would affect the viability or size of any Swift Parrot populations in the area.	**A significant impact is not likely**
2. Reduce the area of occupancy of the species	The Swift Parrot breeds in Tasmania during spring to early summer and migrates to the mainland during autumn and winter to forage. Large portions of the referral area are mapped as Category X (non-remnant) under the Queensland *Vegetation Management Act 1999* where high levels of disturbance occur throughout the road reserve. There are no records of the species within 5 km of the site on ALA. Suitable foraging habitat may be present onsite, although higher quality habitat is present within the broader landscape, particularly large intact bushland to the west of the referral area. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by Swift Parrots. No evidence of Swift Parrot activity was recorded on-site. Surrounding impact from earmarked development is likely to restrict the extent of available habitat onsite and connectivity to the referral area will be largely isolated from other habitat (**Plan 4**). Given the higher quality habitat to the west of the referral area and significant disturbance onsite from vehicle usage, it is unlikely the species is utilising vegetation onsite for breeding or roosting. Therefore, due to the above considerations combined it is anticipated that the removal of vegetation on-site is not considered to reduce the area of occupancy for Swift Parrot.	**A significant impact is not likely**
3. Fragment an existing population into two or more populations	The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment potential habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite.	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the species. Given the higher quality intact bushland vegetation to the west, it is likely the species would preferentially forage in these areas rather than the highly disturbed and modified road reserve. Online databases show no records of the species within 5 km of the referral area. As the referral area is surrounded by land that will be impacted by future residential development and lack of evidence of the species onsite, the removal of the potential habitat is unlikely to fragment any existing populations (**Plan 1**).	
4. Adversely affect habitat critical to the survival of a species	The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'. *"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:* ▪ *For activities such as foraging, breeding, roosting or dispersal* ▪ *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)* ▪ *To maintain genetic diversity and long-term evolutionary development* ▪ *For the reintroduction of populations or recovery of the species or ecological community.* Responses to the definition of *habitat critical to the survival of a species'* follows below: • The referral site shows no evidence of current Swift Parrot usage and will not be accessible for Swift Parrot to use for foraging, breeding, roosting or dispersing as a result of the development within the Greater Flagstone Development Area existing fragmenting factors on all sides. • The vegetation on the referral site is not required for the long-term maintenance of the species as there is higher quality retained bushland vegetation to the west of the referral area which is likely to be preferentially selected by the species. • Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the Swift Parrot. The referral area is therefore unlikely to contribute to genetic diversity of the species. • The referral area will be isolated from other habitat following the development of surrounding residential areas. The referral area forms part of the Flagstone City development area which will consist of future residential areas. In addition, significant current threats exist within and surrounding the referral area including wild dogs, vehicle use, weed encroachment, illegal offroad vehicle use and the train line further east. The referral site is not considered suitable for the reintroduction of Swift Parrot nor will it be able to aid in the recovery of the species. The referral site is, therefore, not considered to be critical to the survival of the species.	**A significant impact is not likely**
5. Disrupt the breeding cycle of a population	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the species. It is not considered that the proposed action would disrupt	**A significant impact is not likely**

Significant Impact Criteria		Assessment	Impact
		the breeding cycle of a population of Regent Honeyeaters as there is a lack of indication of breeding population on-site. The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. Therefore, the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population.	
6.	**Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**	The referral site is subject to significant disturbance in the form of vehicle use and damage, logging, rubbish dumping, invasive fauna species and weed incursion where habitat throughout the site is considered low quality in some areas. The preferred breeding habitat featuring Blue Gum (*Eucalyptus globulus*) is not present onsite nor is non-breeding habitat in the form of inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and southern spotted gum (*Corymbia maculata*) woodland. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by Swift Parrot. It is unlikely this area provides suitable habitat for the species, given the presence of intact higher quality vegetation in the broader landscape, in particular in bushland to the west of the site. Swift Parrot have not been recorded on online databases within 5 km of the referral site therefore it is not considered that the proposed action will impact the habitat on-site to the extent that the species is likely to decline.	**A significant impact is not likely**
7.	**Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat**	The road reserve currently contains species including Wild Dog, Feral Pig and *Lantana camara* (Lantana) that degrade the habitat quality of the Swift Parrot. Given the existing threats present onsite, the road upgrade is unlikely to cause further impact from invasive species. However, measures will be put in place during construction for the road upgrade in order to minimize the introduction of invasive species that are harmful to the Swift Parrot or Swift Parrot habitat.	**A significant impact is not likely**
8.	**Introduce disease that may cause the species to decline, or**	The proposed action is unlikely to introduce disease that may cause the species to decline. Psittacine Beak and Feather Disease (PBFD) is a common and potentially deadly disease of parrots caused by a circovirus. The disease appears to have originated in Australia and is widespread and continuously present in wild populations of many Australian parrots. The preferred breeding habitat featuring Blue Gum (*Eucalyptus globulus*) is not present onsite nor is non-breeding habitat in the form of inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and southern spotted gum (*Corymbia maculata*) woodland. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by Swift Parrot.	**A significant impact is not likely**
9.	**Interfere substantially with the recovery of the species.**	Detailed studies did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the species. Vegetation directly surrounding the road reserve is to be largely cleared as part of development within the Greater Flagstone PDA. Once vegetation within these areas are cleared, the referral area will be isolated from other potential	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	habitat (**Plan 1**). The referral site is not suitable for the reintroduction of Swift Parrot nor will it be able to aid in the recovery of the species. Refer below for an assessment against the EPBC Act Recovery Plan and Conservation Advice for the Swift Parrot	

The EPBC Act National Recovery Plan for the Swift Parrot was published in 2011. The first national recovery plan was adopted in 2002. A revised recovery plan was made in 2011. At the time that the revised recovery plan was made, the threat to swift parrots from sugar gliders was not known. It has been developed with relevant State and Territory Governments to provide an overarching national conservation framework for the listed Regent Honeyeater that aligns with local, state and territory government plans, programs and strategies. However, it does not replace Local, State and Territory Government plans, programs and strategies.

Two (2) key objectives of the National Recovery Plan are provided below with responses relevant to the proposed action:

1. **To prevent further decline of the Swift Parrot population.**

Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the species. The preferred breeding habitat featuring Blue Gum (*Eucalyptus globulus*) is not present onsite nor is non-breeding habitat in the form of inland box-ironbark and grassy woodlands and coastal swamp mahogany (*E. robusta*). Due to the significant disturbance to habitat onsite, and lack of evidence of the species within the referral area, it is considered unlikely that the proposed action will cause a further decline of Swift Parrot populations.

2. **To achieve a demonstrable sustained improvement in the quality and quantity of Swift Parrot habitat to increase carrying capacity.**

The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment potential habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite.

Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Swift Parrot within the referral area, suggesting the vegetation on-site is not utilised by the species. Given the higher quality intact bushland vegetation to the west, it is likely the species would preferentially forage in these areas rather than the highly disturbed and modified road reserve. Online databases show no records of the species within 5 km of the referral area. As the referral area is surrounded by land that will be impacted by future residential development, is relatively small in size and is highly disturbed in its current state, it is unlikely this provides high quality habitat for the Swift Parrot and is not likely to provide suitable habitat in future.

Greater Glider (*Petauroides volans*)

Assessment against the Significant Impact Guidelines 1.1 for the Greater Glider

EPBC Act, Greater Glider populations are listed as Endangered, effective from 5 July 2022. The species is listed under Queensland Nature Conservation Act 1992 (Qld) (NCA) as Vulnerable. As such, the Federal Significant Impact Guidelines can be utilised to determine if a significant impact on Greater Glider may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

Greater Glider Significant Impact Assessment

Conservation Status – The Greater Glider is listed as Endangered under the EPBC Act.

Description – Greater Gliders (*Petauroides volans*) are arboreal nocturnal marsupials with white or cream fur below and varies from dark grey, dusky brown through to light mottled grey and cream fur above.

Distribution – The Greater Glider is distributed across eastern Australia from around Proserpine in Queensland, south through NSW and ACT, to Wombat State Forest in central Victoria. It occurs across an elevational range of 0–1200 m above sea level. The distribution may be patchy even in continuous areas of habitat.

Habitat – The Greater Glider is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges (approximately 1 – 4 ha) and a poor ability to disperse make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments. The Greater Glider shelters in tree hollows during the day with a particular presence for large hollows with a diameter > 10cm in large, old trees. Tree species Greater Glider show presence for in south-eastern Queensland include *Eucalyptus acmenoides* (broad-leaved white mahogany), *E. fibrosa* (red ironbark) and *E. tereticornis* (forest red gum).

Threats – Frequent and intense bushfires, inappropriate prescribed burning, climate change, land clearing and timber harvesting are key threats to the Greater Glider, where loss and fragmentation of habitat has already occurred in many areas of the species range.

To determine whether the proposed action is likely to have a significant impact on the Greater Glider, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 12** below.

Table 12 - EPBC Significant impact criteria for critically endangered and endangered species – Greater Glider

Significant Impact Criteria	Assessment	Impact
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of a population	The Greater Glider is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. A variety of eucalypt species occur within and adjacent to the New Beith Road reserve, however some areas of Category X vegetation are highly disturbed and represent historical clearing with only scattered mature trees remaining. The vegetation across the site comprises cleared road reserve, scattered hollow-bearing mature *Eucalypt sp.*, *Acacia sp.* dominated understorey regrowth, *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas (**Plan 3**). The site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from vehicle use. No evidence of Greater Glider was observed during targeted field surveys onsite and they are highly susceptible to existing disturbance. Vegetation adjacent to the road reserve has been earmarked for development within the Greater Flagstone PDA. Once vegetation on surrounding impact areas have been further cleared, there will be limited connectivity to the referral area and adjoining vegetation to the west, aside from retained waterway areas throughout the road reserve (**Plan 4**). The proposed action is unlikely to reduce the size of the population because the site will be fragmented as a result of surrounding development and does not currently display evidence of Greater Glider usage. It is considered highly unlikely that the removal of vegetation within the referral area would affect the viability or size of any Greater Glider populations in the area.	**A significant impact is not likely**
2. Reduce the area of occupancy of the species	Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Records of this species have been recorded within 15 km of the site, in Flinders Peak Conservation Park on BioMaps. No recent records of the Greater Glider are recorded within the referral area and none are recorded within 5 km of the site. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat it is considered poor quality habitat for the species. Notably, on review it is considered by the Department that edge effects from development and threats can encroach within 100 m to potential habitat areas deterring Greater Glider persistence (refer Conservation Advice). The proposed road alignment is already disturbed by past clearing, both within the alignment and in adjoining cleared development areas, and utilisation by vehicles creating noise, light and dust. The relative disturbance levels within the proposed alignment suggest that the area is unlikely tb suitable for the Grater Glider as per the Conservation Advice.	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	In addition, surrounding impact from earmarked development is likely to restrict the extent of habitat for Greater Glider and connectivity to the referral area will be largely isolated from other Greater Glider habitat (**Plan 4**). While the proposed action will remove potential Greater Glider habitat, the impact is focused on a site that will be inaccessible to Greater Glider and adjoin a major road and residential development. Therefore, due to the above considerations combined it is anticipated that the removal of vegetation on-site is not considered to reduce the area of occupancy for Greater Gliders.	
3. Fragment an existing population into two or more populations	The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment Greater Glider habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite. Field surveys confirmed the presence of hollow bearing trees within the road reserve and scattered within adjacent remnant bushland. No individuals were recorded during field surveys. Due to the high disturbance with vehicle use and other illegal uses, and the modification of surrounding habitat it is considered poor quality habitat for the Greater Glider. Connectivity to vegetation is limited with residential areas to the north and cleared modified areas in the south and southwest. Vegetation associated with Flagstone Creek remains a form of connectivity from vegetation in the east to larger intact bushland in the west (**Plan 4**). Online databases show Greater Glider presence within15 km of the site, in Flinders Peak Conservation Park, however these species are known to have small home ranges between 1 – 4 ha. In addition, the referral area is surrounded by land that will be impacted by future residential development and removal of the potential habitat is unlikely to fragment any existing populations (**Plan 1**).	**A significant impact is not likely**
4. Adversely affect habitat critical to the survival of a species	The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'. *"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:* ▪ *For activities such as foraging, breeding, roosting or dispersal* ▪ *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)* ▪ *To maintain genetic diversity and long-term evolutionary development* ▪ *For the reintroduction of populations or recovery of the species or ecological community.* Responses to the definition of *habitat critical to the survival of a species'* follows below:	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	• The referral site shows no evidence of current Greater Glider usage and will not be accessible for Greater Glider to use for foraging, breeding, roosting or dispersing as a result of the development within the Greater Flagstone Development Area existing fragmenting factors on all sides. • Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Greater Glider within the referral area, suggesting the vegetation on-site is not utilised by Greater Glider. The referral area is therefore unlikely to contribute to genetic diversity of the species. • The referral area will be isolated from other Greater Glider habitat onsite following the development of surrounding residential areas. The referral area forms part of the Flagstone City development area which will consist of future residential areas. In addition, significant current threats exist within and surrounding the referral area including wild dogs, vehicle use, weed encroachment, illegal offroad vehicle use and the train line further east. The referral site is not considered suitable for the reintroduction of Greater Glider nor will it be able to aid in the recovery of the species. • Substantial clearing has occurred within the northern and central extents of the road reserve, and on adjacent land to the west. In this area, vehicle disturbance is common among other illegal uses. However, throughout the road reserve, large mature hollow-bearing trees remain which provide potential habitat for the Greater Glider. Due to fragmentation to the adjacent bushland, high disturbance levels and a lack of local records, it is considered a low likelihood that these hollow-bearing trees are being utilised by Greater Glider. • Part of the referral area is mapped as Category X vegetation and while hollow bearing trees are present throughout the referral area, Greater Glider preferentially select large tree hollows in mature forests. The referral area is highly disturbed throughout, unlikely to present suitable mature forest vegetation. The referral site is, therefore, not considered to be critical to the survival of the species.	
5. Disrupt the breeding cycle of a population	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Greater Glider within the referral area, suggesting the vegetation on-site is not utilised by Greater Glider. It is not considered that the proposed action would disrupt the breeding cycle of a population of Greater Glider as there is a lack of indication of breeding population on-site. Greater Glider do not have specific habitat requirements of breeding and the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population. Further, connectivity will be facilitated by the provision of best-practice fauna passage (**Plan 4**).	**A significant impact is not likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The referral area is subject to significant disturbance and modification from clearing, offroad vehicle use and rubbish dumping. Further, the road easement includes existing power lines that lead to the reservoir on top of Round Mountain that present a potential additional fragmenting factor and threat. It is unlikely that Greater Glider are utilising the hollow-bearing trees onsite as these are fragmented from the existing bushland and there was no evidence of Greater Glider detected onsite. It is not considered that the proposed action will impact the habitat on-site to the extent that the species is likely to decline.	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The proposed action is unlikely to exacerbate the introduction of invasive species.	**A significant impact is not likely**
8. Introduce disease that may cause the species to decline, or	The project is unlikely to introduce disease into the area.	**A significant impact is not likely**
9. Interfere substantially with the recovery of the species.	Detailed studies did not detect any evidence of Greater Glider within the referral area, suggesting the vegetation on-site is not utilised by Greater Glider. In addition, surrounding vegetation falls within the Greater Flagstone PDA which are earmarked for development. Once vegetation within these areas are cleared, the referral area will be isolated from other Greater Glider habitat (**Plan 1**). The referral site is not suitable for the reintroduction of Greater Glider nor will it be able to aid in the recovery of the species. Refer below for a response to the Conservation Advice.	**A significant impact is not likely**

The conservation advice for *Petauroides volans* (greater glider (southern and central)) came into effect on 5th July 2022. The document combines the approved conservation advice and listing assessment for the species and provides a foundation for conservation action and further planning.

Key threats to the Greater Glider are frequent and intense bushfires, inappropriate prescribed burning, climate change, land clearing and timber harvesting. The primary conservation objective is that within the next three generations, the population size as well as the extent, quality and connectivity of habitat required to maintain the population will have increased.

Conservation and management priorities

Habitat loss, disturbance and modification (including fire)

In the wake of the recent bushfires, unburnt areas are to be protected to support population recovery. The referral area is not part of the recent bushfire impacts in question, nor was the species recorded on site.

The proposal will result in the clearing of 17.12 hectares of potential poor quality and highly disturbed Greater Glider habitat. The high disturbance levels, to which the species is highly susceptible, are reflected in the lack of species records on site and surrounding. The widening of an existing road corridor is not considered to reduce suitable habitat for the species.

Climate change

The impact site is not considered to be a climate change refuge. Notably, retained habitat areas will be rehabilitated to remove weeds and improve natural microclimate resources.

Invasive species (including threats from predation, grazing, trampling)

The proposed action will not introduce threats from predation that are not already present.

Ex-situ recovery actions

Translocation is not proposed in the absence of the species. Notably, connected areas of potential foraging habitat for the species will be retained and rehabilitated on site.

Stakeholder and Community Engagement

Not applicable to the proposed action.

Survey and Monitoring Priorities

Not applicable to the proposed action.

Information and Research Priorities

Not applicable to the proposed action.

Recovery Plan

There Is not yet a recovery plan for the species.

Koala (*Phascolarctos cinereus*)

Assessment against the Significant Impact Guidelines 1.1 for the Koala

As of 12 February 2022, the EPBC Act referral guidelines for the vulnerable Koala have been redacted following the elevation of the Koala listing status under the EPBC Act to Endangered. As such, the Federal Significant Impact Guidelines are to be utilised in the interim to determine if a significant impact on Koala may occur as a result of the proposed action. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

Koala Significant Impact Assessment

Conservation Status – The Koala is listed as Endangered under the EPBC Act.

Description – Koalas (*Phascolarctos cinereus*) are native Australian tree-dwelling marsupials with predominantly grey coloured fur.

Distribution – The Koala is found from north-east Queensland to the south-east corner of South Australia. As a consequence of translocations, the Koala are found outside their historic range, for example, Kangaroo Island. The distribution of the Koala is influenced by altitude, temperature and leaf moisture. The density of the Koala population in coastal regions is generally greater than inland areas. Koalas are known to naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by *Eucalyptus* sp.

Habitat – Koala habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland and emergent food trees. Preferred food and shelter trees are naturally abundant on fertile clay soils. Along the Great Dividing Range and the coastal belt throughout the species' range, Koalas inhabit moist forests and woodlands mostly dominated by *Eucalyptus* sp.

Koalas are highly territorial, and individuals maintain their own home range which may overlap with other individuals. Home ranges are variable depending on the location, with those in "poorer" habitats being larger than in higher quality habitats. There is little evidence for longer movements in most cases, though dispersing individuals, mostly young males, may occasionally cover distances of several kilometres over land with little vegetation. In SEQ, the average distance between natal and breeding home ranges was similar for males and females, at approximately 3.5 km. Maximum dispersal distances were up to approximately 10 km for males and females. Other studies have reported movement of up to 16 km in rural SEQ.

Threats – Habitat loss and fragmentation, vehicle strike and predation by domestic or feral dogs are the main threats to the Koala. Extreme environmental events, such as drought, can also cause significant mortality.

To determine whether the proposed action is likely to have a significant impact on the Koala, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 13** below.

Table 13 - EPBC Significant impact criteria for critically endangered and endangered species – Koala

Significant Impact Criteria	Assessment	Impact
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of a population	The New Beith road upgrade comprises a works extent of 17.12 ha and 3.2 km in length, with a referral area inclusive of a 20 m buffer totaling 30.16 ha. The vegetation across the site comprises cleared road reserve, scattered hollow-bearing mature *Eucalypt sp*., *Acacia sp.* dominated understorey regrowth, *Allocasuarina littoralis* understorey vegetation, and *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Lophostemon suaveolens* (Swamp Box) dominated waterway areas (**Plan 3**). The site has been subjected to disturbance from historic clearing through the centre of the road reserve in addition to ongoing disturbance from vehicle use. No evidence of Koala in the form of scats, scratch marks or direct observations was recorded during field surveys, suggesting Koalas are not utilising the site. Vegetation adjacent to the road reserve has been earmarked for development within the Greater Flagstone PDA. Once vegetation on surrounding impact areas have been cleared, there will be limited connectivity to the referral area and adjoining vegetation to the west, aside from retained waterway areas throughout the road reserve (**Plan 4**). The proposed action is unlikely to reduce the size of the population because the site will be fragmented as a result of surrounding development and does not currently display evidence of Koala usage. It is considered highly unlikely that the removal of vegetation within the referral area would affect the viability or size of any Koala populations in the area.	**A significant impact is not likely**
2. Reduce the area of occupancy of the species	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Koala within the referral area, suggesting the vegetation on-site is not utilised by Koalas. No evidence of Koala activity was recorded on-site. Surrounding impact from earmarked development is likely to restrict the extent of habitat for Koala and connectivity to the referral area will be largely isolated from other Koala habitat (**Plan 4**). While the proposed action will remove potential Koala habitat as per Yogentob et al. 2021, the impact is focused on a site that will be inaccessible to Koala and adjoin a major road and residential development. No evidence of Koala occupying the site was recorded. Therefore, due to the above considerations combined it is anticipated that the removal of vegetation on-site is not considered to reduce the area of occupancy for Koalas.	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
3. Fragment an existing population into two or more populations	The site is currently subject to significant fragmentation to the north with existing residential development (**Plan 1**). Land directly to the east and west of the road reserve is earmarked for development within the Greater Flagstone PDA, which will further fragment Koala habitat within the existing road reserve. In the wider landscape, significant fragmentation currently exists to the north and east, with residential development and major railway infrastructure in these areas. Land clearing and ongoing vehicle disturbance on land to the west and south of the road reserve further fragments potential habitat onsite. Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Koala within the referral area, suggesting the vegetation on-site is not utilised by Koalas. Online databases show Koala presence within the adjacent site to the east, however this area will be significantly fragmented from the road reserve within the Greater Flagstone Development Area. The referral area is surrounded by land that will be impacted by future residential development and removal of the potential habitat is unlikely to fragment any existing populations (**Plan 1**).	**A significant impact is not likely**
4. Adversely affect habitat critical to the survival of a species	The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'. *"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:* ▪ *For activities such as foraging, breeding, roosting or dispersal* ▪ *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)* ▪ *To maintain genetic diversity and long-term evolutionary development* ▪ *For the reintroduction of populations or recovery of the species or ecological community.* Responses to the definition of *habitat critical to the survival of a species'* follows below: • The referral site shows no evidence of current Koala usage and will not be accessible for Koala to use for foraging, breeding, roosting or dispersing as a result of the development within the Greater Flagstone Development Area existing fragmenting factors on all sides. • The vegetation on the referral site is not required for the long-term maintenance of the species as there is no species essential to the survival of Koala within the referral site that are not found commonly throughout the broader landscape, including retained corridors and habitat areas within extensive bushland to the west of the site. • Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Koala within the referral area, suggesting the vegetation on-site is not utilised by Koalas. The referral area is therefore unlikely to contribute to genetic diversity of the species. • The referral area will be isolated from other Koala habitat following the development of surrounding residential areas. The referral area forms part of the Flagstone City development area	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	which will consist of future residential areas. In addition, significant current threats exist within and surrounding the referral area including wild dogs, vehicle use, weed encroachment, illegal offroad vehicle use and the train line further east. The referral site is not considered suitable for the reintroduction of Koala nor will it be able to aid in the recovery of the species. The referral site is, therefore, not considered to be critical to the survival of the species.	
5. Disrupt the breeding cycle of a population	Detailed studies utilising both direct and indirect survey methods did not detect any evidence of Koala within the referral area, suggesting the vegetation on-site is not utilised by Koalas. It is not considered that the proposed action would disrupt the breeding cycle of a population of Koala as there is a lack of indication of breeding population on-site. Koala do not have specific habitat requirements of breeding and the removal of the potential habitat in the relatively small area of the referral site is unlikely to disrupt the breeding cycle of the population.	**A significant impact is not likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed action will impact potential Koala food trees. No evidence of Koala in the form of direct sightings or indirectly through scratch marks or scats was detected on-site during targeted surveys nor incidental surveys. Koala have been recorded to the east of the site but as the referral area does not show evidence of Koala utilising the site, it is not considered that the proposed action will impact the habitat on-site to the extent that the species is likely to decline.	**A significant impact is not likely**
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The road reserve currently contains species including wild dog and *Lantana camara* (Lantana) that are harmful to the endangered Koala. Given the existing threats to Koala onsite, the road upgrade is unlikely to cause further impact from invasive species. However, measures will be put in place during construction for the road upgrade in order to minimize the introduction of invasive species that are harmful to the Koala or Koala habitat.	**A significant impact is not likely**
8. Introduce disease that may cause the species to decline, or	Diseases including chlamydial disease and Koala retrovirus (KoRV) are prevalent among Koala populations in South East Queensland. It is unlikely that the proposed action will introduce or increase the prevalence of disease in Koalas particularly as the action is not considered to impact a local population.	**A significant impact is not likely**
9. Interfere substantially with the recovery of the species.	Detailed studies did not detect any evidence of Koala within the referral area, suggesting the vegetation on-site is not utilised by Koalas. Koala records are evident in vegetation to the east of the site however these areas fall within the Greater Flagstone PDA which are earmarked for development. Once vegetation within	**A significant impact is not likely**

Significant Impact Criteria	Assessment	Impact
	these areas are cleared, the referral area will be isolated from other Koala habitat (**Plan 1**). The referral site is not suitable for the reintroduction of Koala nor will it be able to aid in the recovery of the species. Refer below for an assessment against the EPBC Act Recovery Plan and Conservation Advice for the Koala.	

The EPBC Act National Recovery Plan for the Koala was published in March 2022. This recovery plan for the listed Koala replaces the National Koala Conservation and Management Strategy (2009-2014) (NRM Ministerial Council 2009). It has been developed with relevant State and Territory Governments to provide an overarching national conservation framework for the listed Koala that aligns with local, state and territory government plans, programs and strategies. However, it does not replace Local, State and Territory Government plans, programs and strategies. It is the first recovery plan for the nationally listed Koala.

The overall goal of the National Recovery Plan is 'to stop the trend of decline in population size of the listed Koala, by having resilient, connected, and genetically healthy metapopulations across its range, and to increase the extent, quality and connectivity of habitat occupied'.

Three (3) key objectives of the National Recovery Plan are provided below with responses relevant to the proposed action:

1. **The area of occupancy and estimated size of populations that are declining, suspected to be declining, or predicted to decline are instead stabilised and then increased. The area of occupancy and estimated size of populations that are suspected and predicted to be stable are maintained or increased.**

The proposed action will reduce the potential area of occupancy within this locality through the loss of approximately 17.12 ha of potential habitat that is already highly disturbed.

The proposed action will not reduce the size of the population. No evidence of Koala activity was recorded on-site, although Koala have been recorded on online databases to the east of the referral site. The referral area is already effectively fragmented on all remaining sides. Once the vegetation within the Greater Flagstone PDA impact area has been cleared, the referral area will be completely isolated from other Koala habitat and effectively inaccessible to the Koala.

2. **Metapopulation processes are maintained or improved**

No evidence of Koala activity was recorded on-site, although Koala have been recorded on online databases to the east of the referral area. Once the vegetation within the Greater Flagstone PDA impact area has been cleared, the referral area will be completely isolated from other Koala habitat and effectively inaccessible to the Koala. Metapopulation processes will be maintained following the removal of vegetation form the referral area because the site is not currently and will not be contributing to dispersal or maintenance of genetic diversity for the species.

3. **Partners, communities and individuals have a greater role and capability in listed Koala monitoring, conservation and management**

No evidence of Koala activity was recorded on-site, although records of Koala have been recorded online to the east of the site.

Although the proposed action will involve the removal of potential Koala habitat, the potential for a significant impact is mitigated by focusing development within a site that is not currently utilised, is highly fragmented and will be functionally lost to Koala with the development of the surrounding Greater Flagstone PDA.

The Koala Conservation Advice came into effect on 12 February 2022. It lists six conservation and recovery actions that are categorised into 'supporting strategies' which provide for governance to coordinate actions, led by the Australian Government in partnership with the States and Territories, and 'on-ground (direct) strategies' which relate to improving habitat quality and restoration, implemented at the site level.

The development is considered to be consistent with the on-ground strategies detailed in the Conservation Advice and Recovery Plan:

- Strategy 5: Strategic habitat restoration
- Strategy 6: Active metapopulation management

Strategy 5: Strategic habitat restoration
Restoration increases the overall habitat available for Koalas and increases the connectivity between areas of habitat to contribute to ensuring the long-term survival of Koala populations. It involves restoring lost and degraded habitat to improve environmental functions.

While the development proposes to impact on potential Koala food trees, the site is currently highly fragmented and will be completely fragmented once the surrounding areas are developed within Greater Flagstone PDA. No evidence of Koala activity was recorded, despite targeted searches. Noting also that the referral area forms part of the Greater Flagstone PDA and is adjacent to significant residential development, it is not considered to be a strategic location for habitat restoration.

Strategy 6: Active metapopulation management
Metapopulation management concerns the movement of individuals and genes between populations. Consideration of metapopulation management is reflected in the design of the development, specifically the creation and rehabilitation of conservation areas to promote connectivity and Koala movement within the landscape, and through the removal of hazards to Koala. Notably, Koala connectivity will be facilitated by best practice fauna passage linkages (**Plan 4**).

The site is highly fragmented and is likely to become completely fragmented with the development within Greater Flagstone PDA directly to the east and west. Evidence suggests it does not currently support Koala activity. Development of the site is not considered to impact adversely on active metapopulation management.

Grey-headed Flying Fox (*Pteropus poliocephalus*)

Assessment against the Significant Impact Guidelines 1.1 for the Grey-headed Flying Fox

The Significant Impact Guidelines 1.1 provides specific definitions for '*a population of a species*' and '*habitat critical to the survival of a species or ecological community*'. This definition is a key consideration when conducting significant impact assessments for a threatened species or ecological community listed under the EPBC Act. The definitions are presented below.

Grey-headed Flying Fox Significant Impact Assessment

Conservation Status – The Koala is listed as Vulnerable under the EPBC Act.

Description – Grey-headed Flying-fox (*Pteropus poliocephalus*) is a megabat native to Australia with dark grey fur on the body and lighter grey fur on the head and a russet collar encircling the neck.

Distribution – The Grey-headed Flying-fox (GHFF) (*Pteropus poliocephalus*) occurs between Rockhampton in Queensland to Melbourne in Victoria. The species will usually selectively forage where food is available and as such, its patterns of occurrence and relative abundance vary between seasons and years. There are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout its geographic range.

Habitat – Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from *Eucalyptus* and related genera. The species will usually selectively forage where food is available and as such, its patterns of occurrence and relative abundance vary between seasons and years. There are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout its geographic range.

Threats – The primary threat to the Grey-headed Flying-fox is shooting and culling to protect commercial fruit farms. In addition, habitat loss and fragmentation creates competition for food sources and the loss of roosting camps is also considered to be a threat.

To determine whether the proposed action is likely to have a significant impact on the Grey-headed Flying Fox, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 14** below.

Table 14: EPBC Significant impact criteria for vulnerable species – Grey-Headed Flying-Fox

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long term decrease in the size of an important population of a species.	Although some flowering Eucalypt species were observed within the referral area, no evidence of Grey-headed Flying-fox individuals were recorded and no roost camps were recorded on site during field survey. No known roost camps are located within close proximity to the site with the nearest roost located approximately 5 km south-east of the site at Homestead Drive (464), with the latest survey in August of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals. SEQ has a permanent and abundant population of Grey-headed Flying-fox and available habitat is spread throughout the region given the high prevalence of eucalypts. While vegetation on site may be considered potential foraging habitat for the species, due to the absence of roost camps on or within close proximity to the site and the abundance of suitable habitat to the west, the site is considered part of a broader home range for transient individuals and to not support an important population of the species. The proposed action is unlikely to lead to a long term decrease in the size of any local Grey-headed Flying-fox populations.	**A significant impact is not likely**
2. Reduce the area of occupancy of an important population.	Although some flowering Eucalypt species were observed within the referral area, no evidence of Grey-headed Flying-fox individuals were recorded and no roost camps were recorded on site during field survey. No known roost camps are located within close proximity to the site with the nearest roost located approximately 5 km south-east of the site at Homestead Drive (464), with the latest survey in August of 2013 categorising the number of GHFF at a level 1 which equates to between 1-499 individuals. As such, the project will not have a significant impact on any population of the species. Roosting camps are located within approximately 5 - 11 km of the site, however, the given the abundance of suitable habitat to the west in comparison to the relative quality of site habitat, the site is only considered to be utilised by transient individuals as part of a broader home range. While the proposed action will remove potential foraging habitat, given the abundant availability of eucalypts in the surrounding landscape and the greater SEQ region, the development proposal is unlikely to have a significant impact on the area of occupancy of the species.	**A significant impact is not likely**
3. Fragment an existing important population into two or more populations.	The SPRAT species profile outlines that while there are spatially structured colonies of Grey-headed Flying-fox, there are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout the species' geographic range. In addition, given the high mobility of the species, the proposed action is unlikely to fragment a population into two or more populations.	**A significant impact is not likely**
4. Adversely affect habitat critical to the survival of a species.	While the proposed action results in the removal of potential foraging habitat, this habitat is highly disturbed and subject to edge effects from surrounding existing and planned future urban development. Further, this habitat is not considered to be unique or of special value. The SEQ landscape provides abundant eucalypt and similar genera which are available for foraging. The habitat on site is not considered to be critical to the survival of the Grey-headed Flying-fox.	**A significant impact is not likely**

Significant Impact Criteria	Description	Impact
5. Disrupt the breeding cycle of an important population.	The site surveys did not identify any evidence of breeding Grey-headed Flying-fox. Mating normally occurs within autumn, and females generally give birth in October, where they carry their young to feeding sites for four to five weeks after giving birth. As no roosting camps were observed on or near the site, the proposed action is unlikely to disrupt the breeding cycle of an important population.	**A significant impact is not likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The habitat on site did not contain any special or unique values. Its removal is unlikely to have a significant impact on the availability of habitat in the landscape, given the vast quantity and availability of eucalypts in the surrounding area.	**A significant impact is not likely**
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The proposed action is unlikely to exacerbate the introduction of invasive species.	**A significant impact is not likely**
8. Introduce disease that may cause the species to decline.	The project is unlikely to introduce disease into the area.	**A significant impact is not likely**
9. Interfere substantially with the recovery of the species.	Recovery of the species has specifically targeted the broad scale culling of the species. In addition, conservation efforts have led to the protection of known roosting sites and important habitat. The site has not been identified as an important habitat or roost site and the action is unlikely to interfere with the recovery of the species.	**A significant impact is not likely**

The above assessment against the *EPBC Significant Impact Guidelines 1.1* indicates the proposed action is highly unlikely to have a significant impact on the Grey-headed Flying-fox. It is noted that suitable foraging habitat for the Grey-headed Flying-fox will be retained within onsite waterway corridors, including eucalypts along Flagstone Creek, should visitation by the species occur. Refer below for a response to the National Recovery Plan.

The purpose of the National Recovery Plan for the Grey-headed Flying-fox 2021 is to set out the management and research actions necessary to stop the decline of, and support the recovery of the Grey-headed Flying-fox over the next 10 years. The overall objectives of this Grey-headed Flying-fox recovery plan are:

- To improve the Grey-headed Flying-foxes national population trend by reducing the impact of the threats outlined in this plan on Grey-headed Flying-foxes through habitat identification, protection, restoration and monitoring, and
- To assist communities and Grey-headed Flying-foxes to coexist through better education, stakeholder engagement, research, policy and continued support to fruit growers.

The plan addresses the key threats facing the Grey-headed Flying-fox and recovery objectives which are provided below with responses relevant to the proposed action:

Identify, protect and increase native foraging habitat that is critical to the survival of the Grey-headed Flying-fox

No roosts were identified on-site or in the proximity. Habitat critical to the survival of the species is considered important winter and spring flowering vegetation communities. Important winter and spring vegetation communities are those that contain *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora, C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia* or *Syncarpia glomulifera* (Eby and Law 2008; Eby 2016; Eby et al. 2019).

Of the species listed above, *Corymbia citriodora, Eucalyptus crebra, Eucalyptus siderophloia, Eucalyptus tereticornis*, and *Melaleuca quinquenervia* were recorded within the referral area, although highly disturbed. The Grey-headed Flying-fox is a highly mobile species and there are ample more optimal foraging resources for the species in the adjoining landscape.

Identify, protect and increase roosting habitat of Grey-headed Flying-fox camps

No roosts were identified within the comprehensive surveys of the referral area. Preferred roosting habitat for the Grey-headed Flying-fox is poorly understood, therefore it is difficult to preserve potential roosting habitat for the species.

Determine trends in the Grey-headed Flying-fox population so as to monitor the species' national distribution, habitat use and conservation status

Not applicable. Mitigation measures will be implemented during construction and operation of the proposed action to reduce threats.

Build community capacity to coexist with flying-foxes and minimise the impacts on urban settlements from new and existing camps while avoiding interventions to move on or relocate entire camps

Not applicable. There are no observed roosts on-site.

Increase public awareness and understanding of Grey-headed Flying-foxes and the recovery program, and involve the community in the recovery program where appropriate

Not applicable.

Improve the management of Grey-headed Flying-fox camps in areas where interaction with humans is likely

Not Applicable. There are no observed roosts on-site.

Significantly reduce levels of licenced harm to Grey-headed Flying-foxes associated with commercial horticulture

Not applicable.

Support research activities that will improve the conservation status and management of Grey-headed Flying-foxes

Not applicable.

Reduce the impact on Grey-headed Flying-foxes of electrocution on power lines, and entanglement in netting and on barbed-wire

No roosts were identified on-site. The vegetation on-site contains some of the nineteen (19) important winter and spring foraging species for the Grey-headed Flying-fox in a highly disturbed state. As such, it is considered that the referral area vegetation provides poor quality foraging habitat for this species .

From: Brandon Bouda
Sent: Tuesday, 14 February 2023 12:20 PM
To: Troy Thompson
Subject: New Beith Road

Hi Troy

In relation to New Beith Road, under EDQ planning this is identified as an 4 lane Urban Arterial road at its ultimate construction consisting of a 33m wide corridor. This road is a critical link from the PDA to the northern part of Logan via Pub Lane and Greenbank Arterial Road and onto other major nodal points including Springfield.

In the interim before the ultimate road is needed, New Beith Road will be a 2 lane urban Arterial road and will still provide that critical connection to the northern part of Logan and other major nodal points, but importantly it is also required for emergency access for both emergency services and the growing population given there is currently only one formal entry into PDA from Homestead Drive.

EDQ supports any necessary works, subject to appropriate approvals in place, to enable the construction of this road at the earliest possible timeframe.

I hope this assists and if there is anything more you need, please do not hesitate to contact me.

Regards

Queensland Government

Brandon Bouda
Manager
Economic Development Queensland
Department of State Development, Infrastructure, Local Government and Planning

*Microsoft teams – **meet now***

statedevelopment.qld.gov.au

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I acknowledge the traditional custodians of the lands and waters of Queensland. I offer my respect to elders past, present and emerging as we work towards a just, equitable and reconciled Australia.